Kampo: Japanese Herbal Medicine • Ginkgo for Computer Users • Herbal Market Report 2006–2007

The Journal of the American Botanical Council

Number 78 | May – July 2008



US/CAN \$6.95



Harvesting Chamomile flowers on the Pharm Farm.

PURE HERBS MAKE PURE HERBAL EXTRACTS How we grow and harvest our herbs



You'll find Herb Pharm at fine natural food stores, healthcare clinics, or at www.herb-pharm.com

At Herb Pharm only the highest quality herbs go into our herbal extracts. That's why we created the "Pharm Farm" – our certified organic farm located near our manufacturing facility in rural southern Oregon. There we grow and process our herbs as nature intended – without the use of genetically modified seeds, synthetic agricultural chemicals, fumigants, or irradiation.

For those cultivated herbs we can't grow ourselves, we procure directly from other organic farmers who we personally know and trust. This often requires traveling to such remote and exotic locations as the Pacific islands of Vanuatu in search of Kava roots, to a 16,000-foot high Peruvian altiplano sourcing Maca roots, and to the foothills of the Himalayas for Darjeeling Green Tea.

We also harvest our wild herbs in a responsible and sustainable manner – what we've termed "Custom Wildcrafted." Our strict harvesting protocols assure proper botanical identification of each herb species, and their sustainable harvest in their natural wild habitat.

We work very hard and go to great lengths to produce herbal products that we feel are purely and simply the best.



Sea Buckthorn

Hippophae rhamnoides Family: Elaeagnaceae

INTRODUCTION

Typically found in the thickets of mountain slopes, high-altitude meadows, river banks, and seashores, sea buckthorn is a deciduous, hardy, thorny shrub.^{1,2} It produces yellow-green flowers in the spring followed by yellow and orange fruits that have a passion fruit flavor when sweetened.¹ The dried fruit has a sour and astringent taste. Native to Asia and Europe, sea buckthorn is widely distributed from China, India, Mongolia, and the Russian Federation, to Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan, and parts of Europe.³ The material of commerce comes primarily from China and Russia, with increasing production in Kazakh-

stan, India, and Germany.⁴ Pharmacopeial quality sea buckthorn used in the Chinese system of medicine is collected in autumn and winter when ripe or frozen hard, removed from foreign matter, and sun dried or dried after steaming. It must contain a minimum of 15% ethanol-soluble extractives, minimum 1.5% of total flavonoids (calculated as rutin), and not less than 0.1% of isorhamnetin as determined by High Performance Liquid Chromatography.⁵ The material used in the Tibetan system of medicine is collected from August to October and processed into a medicinal concentrated decoction form. The pith of the stem is also used medicinally.⁶ In the European Anthroposophical system of medicine, the fresh branches with fruit, the fresh fruits, and the fatty oil obtained from the seeds and/or fruit are used medicinally.⁷

HISTORY AND CULTURAL SIGNIFICANCE

For over a thousand years, preparations made from sea buckthorn have been used medicinally in Mongolia, China, and Tibet.² The first documented benefits of sea buckthorn were recorded in the classic 8th century CE Tibetan medical text rGyud Bzi (The Four Books of Pharmacopeia). Young branches and leaves were used in ancient Greece as horse feed, which resulted in weight gain and a healthy shine to the horses' coats, and accounts for the genus name, Hippophae (shining horse). Sea buckthorn selection and breeding began in Russia in 1933, and researchers there have investigated active compounds in the plant's fruits, leaves, and bark since the 1940s.8 Russian cosmonauts incorporated the fruit juice into their diet and the fruit pulp oil into a cream to help protect them from solar radiation. An estimated 1.2 million hectares (nearly 3 million acres) of sea buckthorn are found in China, half of which have been cultivated, with about 150 processing plants that produce over 200 industrial and consumer products such as pharmaceuticals and cosmetics.9 Sea buckthorn fruit is an official medicine in the Chinese pharmacopeia, indicated for the treatment of cough with profuse expectoration, indigestion, stagnancy of food with abdominal pain, amenorrhea due to blood stagnation, and traumatic swelling and bleeding under the skin (eccymosis).10

Various medicinal forms of sea buckthorn are prepared for oral and topical administration in Chinese medicine. In addition to the Chinese pharmacopeial standard for the dried fruit (Fructus Hippophae PPRC), which is used in decoctions, there are other "national



©2008 Stevenfoster.com

standards" established for the seed oil, the fruit oil, and for "flavones powder" (powdered extract of fruit pulp and leaves standardized to isorhamnetin). There are non-official industry standards established for the juice, juice concentrate, powdered juice (spray-dried and freeze-dried), and wine.¹¹ Sea buckthorn oil, extracted from the seeds and/or the fruits, is used externally in cosmetics as a natural ultraviolet light filter, in skin-regenerating compositions, and as a natural plasticizer and emulsifier.¹² In Europe, CO2 extracts of the fruit pulp and of the seeds (oily or semi-solid extracts containing CO2-soluble lipohilic components) are produced for pharmaceutical products, cosmetics for skin care, sunburn, and for essential fatty acid food

supplements. Sea buckthorn fruit is high in vitamin A and C,^{1,12} protein, fatty acids,¹³ carotene,¹⁴ and vitamin E.¹⁵ The fruit is used to make bonbons, marmalades, syrups, fruit-flavored herb teas, liquors, dietary supplements, and medicinal herbal products.

Sea buckthorn also has environmental value. Between 1950 and 1985, 200,000 hectares (just over 494,210 acres) of sea buckthorn were planted in China for erosion control and fuel wood production.¹⁶ It is being used to reclaim wasteland and mined areas in Canada, Germany, Hungary, Romania, and Russia.

MODERN RESEARCH

Both clinical and animal research has shown that sea buckthorn preparations, especially the oil obtained from the seeds or fruit, taken internally can treat clinical indicators associated with heart disease,^{17,18,19} and a powdered extract of the fruit and leaf, standardized to total flavones, was shown to improve heart function in a small randomized, double-blind, placebo-controlled trial.²⁰ A randomized controlled trial investigating the effect of an undefined sea buckthorn dry extract granule (Sichuan Pharmaceutical Co. LTD) concluded that the extract may be useful for prevention and treatment of liver fibrosis.²¹ A small open-label pilot study investigated the treatment of chronic vaginal inflammation with orally administered capsules containing a mixture of oils extracted from sea buckthorn seeds and berries using supercritical CO2 (Omega 7 Sea Buckthorn Oil manufactured by Aromtech Ltd, Finland). Based on improvements seen in the trial, larger clinical trials are justified.²² The same authors carried out a double-blind, placebo-controlled trial using the same sea buckthorn oil preparation in female patients with Sjögren's syndrome (an immunologic disorder characterized by the progressive destruction of the exocrine [tear, salivary and sweat] glands). Results of the trial suggest beneficial effects of sea buckthorn oil capsule on the overall condition of the mucous membranes of patients with Sjögren's syndrome.²³

Sea buckthorn oil is very stable and has shown promise for external use as a therapeutic skin cream ingredient.²⁴ Numerous trials suggest its efficacy in wound and burn healing, skin grafts, and reducing tissue inflammation.²⁵ Sea buckthorn pulp and seed oil has also been found to improve cases of radiation-induced dermatitis, wounds, and burns.²⁶ One human clinical trial has shown sea

SEA BUCKTHORN Continued from page 1

buckthorn oil to be successful in treating skin pigmentation disorders and prematurely aging skin, as well as in removing freckles.²⁷ Both sea buckthorn pulp oil and seed oil internally have been helpful in alleviating dermatitis in humans.²⁸ (Although the chemistry of the 2 oils differs, they are often combined into one product.)

FUTURE OUTLOOK

Sea buckthorn occurs in sizable stands across the Eurasian continent and there is some concern about its being invasive, although there are both natural and conventional agricultural ways of controlling its spread.² Conversely, it is rarely observed in the wild in Hungary and is protected there as an endangered species. Some experts on sea buckthorn think that this protection needs to be extended and that considerable research and development needs to occur to ensure sea buckthorn's sustainability. Recent awareness of the plant's nutritional and medicinal value has led to exploitation and destruction of sea buckthorn in its natural habitat.²

Sea buckthorn grows well in certain parts of Canada and was recently promoted there as a cash crop; however, attempts to produce commercially viable sea buckthorn fruits there have been unsuccessful, due to the planting of a non-optimal variety, resulting in losses by growers (C. Kehler e-mail to M. Blumenthal, Mar. 29, 2008). Agriculture and Agri-Food Canada (AAFC) estimated in 2002 that there was a potential annual demand for 10,000 kilograms (about 22,000 pounds) of sea buckthorn oil in North America.¹⁶ To produce this amount of oil, 1.5 million kilograms (about 3,307,000 pounds) of raw fruit would be needed. AAFC also reported that there is potential for a long-term sea buckthorn market in Europe of perhaps 75,000 kilograms (165,000 pounds) of fruit.¹⁶

Various types of sea buckthorn preparations have recently been introduced as dietary supplements and cosmetics in the United States and as natural health products in Canada. Given the relatively wide range of use and the growing body of scientific and clinical research on sea buckthorn preparations, it is likely that they will become popular consumer products in the near future. HG

-Gayle Engels

References

- 1. Bown D. The Herb Society of America New Encyclopedia of Herbs and Their Uses. London: Dorling Kindersley Ltd.; 2001.
- 2. Li TSC, Beveridge THJ. Sea Buckthorn (Hippophae rhamnoides L.): Production and Utilization. Ottawa: NRC Research Press; 2003.
- 3. Haining Q, Gilbert MG. Hippophaë. In: Wu ZY, Raven PH, Hong DY, eds. *Flora of China. Vol. 13 (Clusiaceae through Araliaceae)*. Beijing: Science Press, and St. Louis: Missouri Botanical Garden Press;2007:270-273.
- Brinckmann J. Sea buckthorn fruit: medicinal plant product profile. Market News Service for Medicinal Plants & Extracts. December 2004;13:36-40.
- Chinese Pharmacopoeia Commission. Fructus Hippophae. In: *Pharma-copoeia of the People's Republic of China* (2005) Volume I. Beijing: People's Medical Publishing House. 2005;97-98.
- 6. Dawa G. *Hippophae rhamnoides* L. In: *A Clear Mirror of Tibetan Medicinal Plants*, Vol 1. Rome: Cultural Association Tibet Domani;1999:192-193.
- International Association of Anthroposophic Pharmacists (IAAP). Anthroposophic Pharmaceutical Codex, 2nd ed. Dornach, Switzerland: IAAP;2007:104.
- 8. Rongsen L. The genetic resources of Hippophae and its utilization. International Seabuckthorn Association Expert Forum. Available at: http://www. icrts.org/expert_show.asp?ID=655. Accessed February 22, 2008.
- 9. Singh V. Seabuckthorn: Modern Cultivation Technologies. Delhi, Daya Publishing House. 2008. Available at: http://www.icrts.org/basic_show. asp?ID=596. Accessed February 22, 2008.
- Chinese Pharmacopoeia Commission. Fructus Hippophae. In: Pharmacopoeia of the People's Republic of China (2005) Vol 1. Beijing: People's Medical Publishing House; 2005:97-98.
- 11. International Seabuckthorn Association. Chinese national and industry standards of products. Available at: http://www.icrts.org/commerce_show. asp?ID=639. Accessed February 22, 2008.
- 12. Bruneton J, ed. Pharmacognosy, Phytochemistry, Medicinal Plants. 2nd ed.

Paris: Lavoisier;1999.

- 13. Solonenko L.P., Shishkina E.E. Proteins and amino acids in sea buckthorn fruits. *Biologiya, Khimiya I Farmakologiya Oblepikhi.* 1983;67-82. Cited in Li TSC, Beveridge THJ. *Sea Buckthorn (*Hippophae rhamnoides *L.): Production and Utilization.* Ottawa: NRC Research Press; 2003.
- 14. Kostryrko DR. Introduction of useful plants into the Donetsk Botanic Garden of the Ukrainian Academy of Sciences. *Introd Akklimat Rast*. 1990;14:31-34. (from Hortic. Abst. 61: 3368). Cited in Li TSC, Beveridge THJ. *Sea Buckthorn* (Hippophae rhamnoides *L.): Production and Utilization*. Ottawa: NRC Research Press; 2003.
- 15. Bernath J., Foldesi D., Sea buckthorn (*Hippophae rhaminoides* L.): A promising new medicinal and food crop. *J Herbs Spices Med Plants*. 1992;1:27-35. Cited in Li TSC, Beveridge THJ. Sea Buckthorn (Hippophae rhamnoides L.): Production and Utilization. Ottawa: NRC Research Press; 2003.
- Schroeder WR, Yao Y. Sea-buckthorn a promising multi-purpose crop for Saskatchewan. Agriculture and Agri-Food Canada. Available at: Http:// www.agr.gc.ca/pfra/shelterbelt/shbpub62.htm. Accessed July 4, 2005.
- Xu Q, Chen C, Effects of oil of *Hippophae rhamnoides* on the experimental thrombus formation and blood coagulation system. *Res Dev Nat Prod.* 1991;3:70-73. Cited in Li TSC, Beveridge THJ. *Sea Buckthorn* (Hippophae rhamnoides *L.): Production and Utilization*. Ottawa: NRC Research Press; 2003.
- 18. Jiang YD, Zhou YC, Bi CF, et al. Clinical investigations of effects of sea buckthorn seed oil on hyperlipidemia. *Hippophae*. 1993;6:23-24. Cited in Li TSC, Beveridge THJ. *Sea Buckthorn* (Hippophae rhamnoides *L.): Production and Utilization*. Ottawa: NRC Research Press; 2003.
- Li YR, Wang LY. A preliminary analysis of the effects of sea buckthorn oil capsule and sea buckthorn 'Maisaitong' capsule on ischemic apoplexy. *Hippophae.* 1994;7:45-46. Cited in Li TSC, Beveridge THJ. *Sea Buckthorn* (Hippophae rhamnoides *L.): Production and Utilization.* Ottawa: NRC Research Press; 2003.
- 20. Wang B, Feng Y, Yu Y, Zhang H, Zhu R. Effects of total flavones of *Hippophae rhamnoides* L. (sea buckthorn) on cardiac function and hemodynamics in healthy human subjects. 2001. Translation from the original Chinese provided by Rich Nature Nutroceutical Laboratories, Inc. Available at http://www.richnature.com/products/herbal/articles/heart.pdf. Accessed January 22, 2008.
- Gao ZL, Gu XH, Cheng FT, Jiang FH. Effect of sea buckthorn on liver fibrosis: a clinical study. World J Gastroenterol. July 2003;9(7):1615-1617.
- 22. Erkkola R, Yang B. Sea buckthorn oils: Towards healthy mucous membranes. *AgroFood Industry hi-tech*. 2003;3:53-57.
- Yang B, Erkkola R. Effects of sea buckthorn oil on mucous membranes of patients of Sjögren's syndrome. *The 97th Annual Meeting & Expo of Ameri*can Oil Chemists' Society, April 30 – May 3, St Louis, USA; 2006.
- 24. Singh V. Sea buckthorn (*Hippophae rhamnoides* L.) A wonder plant of dry temperate Himalayas. In: Proceedings of an International Workshop on Sea Buckthorn. A Resource for Health and Environment in the Twenty First Century, February 18-21, 2001, New Delhi, India. 39-42. Cited in Li TSC, Beveridge THJ. Sea Buckthorn (Hippophae rhamnoides L.): Production and Utilization. Ottawa: NRC Research Press; 2003.
- 25. Xu M, Qian ZH, Sun P. A survey of medical research of *Hippophae rhaminoides* L. in China. In: Proceedings of the First International Symposium on Sea Buckthorn, October 19-23, 1989, Xi'an, China. 329-332. Cited in Li TSC, Beveridge THJ. *Sea Buckthorn* (Hippophae rhamnoides *L.): Production and Utilization*. Ottawa: NRC Research Press; 2003.
- 26. Vereshchagin AG, Tysdendambaev VD. Neutral lipids of mature and developed sea buckthorn (*Hippophae rhamnoides* L.) fruits. In: Kader JC, P. Mazliak P, eds. *Plant Lipid Metabolism.* Dordrecht, NL: Kuler Academy Publ; 1995. Cited in Li TSC, Beveridge THJ. *Sea Buckthorn* (Hippophae rhamnoides *L.): Production and Utilization.* Ottawa: NRC Research Press; 2003.
- Zhong F. Study on the immunopharmacology of the components extracted from *Hippophae rhamnoides* L. In: Proceedings of the First Symposium on Sea Buckthorn, October 19-23, 1989, Xi'an, China; 1989:368-370.
- 28. Yang B, Kalimo KO, Mattila LM, Kallio SE, Katajisto JK, Peltola OJ, Kallio HP. Effects of dietary supplementation with sea buckthorn (*Hippophae rhamnoides*) seed and pulp oil on atopic dermatitis. J Nutr Biochem. November 1999;10(11):622-30. Cited in Li TSC, Beveridge THJ. Sea Buckthorn (Hippophae rhamnoides L.): Production and Utilization. Ottawa: NRC Research Press; 2003.

2 | HerbalGram 78

The First Step in GMP Compliance is Identity.

ALKEMISTS PHARMACEUTICALS INCREASING CONFIDENCE THROUGHOUT THE SUPPLY CHAIN

Expertise with over 800 species of botanicals

An in-house herbarium with 6000 + specimens for cross-species referencing

Fast turn around time

10 years of unparalleled customer support

Increase the value of your product line by including a Certificate of Analysis from Alkemists Pharmaceuticals. Contact us for details.

EMI

The Analytical Triad for Dietary Supplements

Organoleptic / Microscopy for Identity and Purity

HPTLC Fingerprint and Marker Quantification

HPLC Qualitative/Fingerprint and Quantitative Analysis

Finished Product Random Analysis for Consumer Confidence

> Method Development and Validation Services

Fitness for Purpose Testing for Identity, Purity, Strength and Composition

www.alkemist.com



ABC Advisory Board

Each issue of HerbalGram is peer reviewed by members of the ABC Advisory Board and other qualified experts before publication.

Cindy K. Angerhofer, PhD Director of Botanical Research, Aveda Institute, Minneapolis, Minnesota

John Thor Arnason, PhD Professor of Biology, Department of Biology, University of Ottawa, Ontario, Canada

Dennis V. C. Awang, PhD, FCIC MediPlant Natural Products Consulting Services, White Rock, B.C., Canada

Bruce Barrett, MD, PhD Associate Professor of Family Medicine, University of Wisconsin-Madison Medical School

Marilyn Barrett, PhD Pharmacognosy Consulting Service, San Carlos, California

Ezra Bejar, PhD Director Vice President of Scientific Affairs, Herbalife International, Inc., Torrance, California

Stacey J. Bell, DSc Research Scientist, IdeaSphere Inc. Grand Rapids, Michigan

Bradley C. Bennett, PhD Associate Professor of Biology, Florida International University, Miami

John A. Beutler, PhD Staff Scientist, Molecular Targets Development Program, National Cancer Institute, Frederick, Maryland

Keith I. Block, MD, Medical and Scientific Director, Block Center for Integrative Cancer Treatment, Evanston, Illinois

Josef Brinckmann VP of Research and Development, Traditional Medicinals, Inc., Sebastopol, California

Francis Brinker, ND Clinical Assistant Professor, Department of Medicines, Program in Integrative Medicine, University of Arizona, Tucson

Donald J. Brown, ND Vice President, Scientific and Educational Affairs, Nature's Way Seattle, Washington

John H. Cardellina, PhD Expert Chemist, Developmental Therapeutics Program, National Cancer Institute, Frederick, Maryland

Thomas J.S. Carlson, MS, MD Associate Adjunct Professor, Department of Integrative Biology; Director, Center for Health, Ecology, Biodiversity, & Ethnobiology; Curator of Ethnobotany, University and Jepson Herbaria; University of California, Berkeley

Jean Carper Author and syndicated columnist, Washington, D.C.

Ray Cooper, PhD, Chief Science Officer, PhytoScience Inc. Los Altos, California

Jerry Cott, PhD Pharmacologist, Silver Spring, Maryland

Paul Alan Cox, PhD Executive Director, Institute for Ethnomedicine Jackson, Wyoming Lyle E. Craker, PhD Professor, Department of Plant and Soil Sciences, University of Massachusetts, Amherst

Edward M. Croom, Jr., PhD Adjunct Associate Professor of Pharmacognosy, University of Mississippi, Oxford, Mississippi

Wade Davis, PhD Explorer-in-Residence, National Geographic Society, Washington, D.C.

Steven Dentali, PhD Vice President of Scientific and Technical Affairs, American Herbal Products Association, Silver Spring, Maryland

Hardy Eshbaugh, PhD Professor of Botany & Assistant Curator, Willard Sherman Turrell Herbarium, Miami University, Oxford, Ohio

Trish Flaster, MS Executive Director, Botanical Liaisons, LLC, Boulder, Colorado

Paula M. Gardiner, MD, MPH, Assistant Professor, Department of Family Medicine, Boston University Medical School, Boston, Massachusetts

Joe Graedon, MS Author, syndicated columnist, radio host, Durham, North Carolina

Bill J. Gurley, PhD, Professor of Pharmaceutical Sciences, College of Pharmacy, University of Arkansas for Medical Sciences Little Rock, Arkansas

Charlotte Gyllenhaal, PhD Research Assistant Professor, College of Pharmacy, University of Illinois at Chicago; Research Program Manager, Block Center for Integrative Cancer Care, Evanston, Illinois

Mary Hardy, MD Director, Cedars-Sinai Integrative Medicine Medical Group, Los Angeles, California

Christopher Hobbs, LAc, AHG Herbalist, botanist, licensed acupuncturist, Davis, California

Freddie Ann Hoffman, MD, CEO and Managing Member, HeteroGeneity, LLC Washington, D.C.

David Hoffmann BSc, FNIMH Medical Herbalist, Author, and Research Associate Traditional Medicinals, Sebastopol, California

Timothy Johns, PhD Professor, School of Dietetics and Human Nutrition; Centre for Indigenous People's Nutrition and Environment, McGill University, Montreal, Canada

Kenneth Jones President and Medical Writer, Armana Research, Inc, Halfmoon Bay, BC, Canada

Edward Kennelly, PhD Associate Professor and Chair, Department of Biological Sciences, Lehman College, City University of New York, Bronx, New York

Ikhlas Khan, PhD Associate Professor of Pharmacognosy, Assistant Director, National Center for Natural Products Research, University of Mississippi, Oxford, Mississippi Steven King, PhD

Vice President, Sustainable Supply and Ethnobotanical Research, Napo Pharmaceuticals Inc., South San Francisco, California

Richard Kingston, PharmD, CSPI President, Regulatory and Scientific Affairs, Safety Call™ International Poison Center; Professor, Department of Experimental and Clinical Pharmacology, College of Pharmacy, University of Minnesota, Minneapolis, MN

Uwe Koetter, PhD, Principal and Founder, Dr. Koetter Consulting Services Switzerland

Thomas L. Kurt, MD, MPH

Clinical Professor, Department of Internal Medicine, University of Texas Southwestern, Dallas, Texas

Roberta A. Lee, MD

Medical Director, Co-Director Integrative Medicine, Continuum Center for Health and Healing; Director of Medical Education and Integrative Fellowship, Beth Israel Medical Center, New York, New York

Martha M. Libster, PhD, RN, CNS Associate Professor of Nursing, East Carolina University, Greenville, North Carolina

Tieraona Low Dog, MD

Clinical Asst. Professor, Director of Botanical Studies, Program in Integrative Medicine, University of Arizona School of Medicine, Tucson, Arizona

Gail B. Mahady, PhD Research Assistant Professor, Department of Medical Chemistry & Pharmacognosy, College of Pharmacy, University of Illinois, Chicago

Robin J. Marles, PhD Director of the Bureau of Research and Science, Natural Health Products Directorate, Health Products and Food Branch, Health Canada, Ottawa

Will C. McClatchey, PhD, Professor of Botany, University of Hawaii Mânoa, Hawaii

Dennis J. McKenna, PhD Senior Scientist, British Columbia Institute of Technology, Burnaby, BC, Canada

Marc S. Micozzi, MD, PhD Executive Director for Integrative Medicine, Thomas Jefferson University Hospital, Philadelphia, Pennsylvania; Director, Policy Institute for Integrative Medicine, Washington, DC

Simon Y. Mills Senior Teaching Fellow, Peninsula Medical School Exeter, England

Daniel E. Moerman, PhD William E. Stirton Professor of Anthropology, University of Michigan/Dearborn

William Obermeyer, PhD Vice President of Research and Technology, ConsumerLab.com, Annapolis, Maryland

Samuel W. Page, PhD Scientist, International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland

Joseph E. Pizzorno, Jr., ND President Emeritus, Bastyr University, Seattle, Washington, and Editor, Integrative Medicine: A Clinician's Journal

Mark J. Plotkin, PhD Author, Executive Director, Amazon Conservation Team, Arlington, Virginia

John M. Riddle, PhD Professor of History, Department of History, North Carolina State University, Raleigh

Eloy Rodriguez, PhD

James Perkins Professor of Environmental Studies, School of Agriculture & Life Sciences, Cornell University, Ithaca. New York

Paul Schulick Founder and Co-CEO, New Chapter, Inc. Brattleboro, Vermont

Holly Shimizu Executive Director, US Botanic Garden, Washington, DC

Victor Sierpina, MD Associate Professor of Family Practice Medicine, University of Texas Medical Branch, Galveston

James E. Simon, PhD

Professor of New Use Agriculture, Director of the Center for New Use Agriculture and Natural Plant Products, Rutgers University, New Brunswick, New Jersey

Beryl Simpson, PhD

C. L. Lundell Professor of Botany, Department of Botany, University of Texas at Austin S. H. Sohmer, PhD President and Director, Botanical Research Institute of Texas, Fort Worth

Ed Smith Chairman, Herb Pharm, Williams, Oregon

Barbara N. Timmermann, PhD Chairperson-Professor of Medicinal Chemistry, University of Kansas, Lawrence, Kansas

Arthur O. Tucker, PhD Research Professor of Agriculture and Natural Resources, Delaware State University, Dover

Nancy Turner, PhD Professor and Ethnobotanist, Environmental Studies Program, University of Victoria, British Columbia, Canada

Jay Udani, MD,

CEO and Medical Director, Medicus Research LLC., Medical Director, Northridge Hospital Integrative Medicine Program, Northridge, California

Roy Upton Herbalist, Executive Director, American Herbal Pharmacopoeia, Scotts Valley, California

Daniel T. Wagner, RPh, MBA, PharmD

Owner, Nutri-Farmacy, Wildwood, Pennsylvania

Andrew T. Weil, MD

Author, Director of the Program in Integrative Medicine and Associate Director of the Division of Social Perspectives in Medicine, College of Medicine, University of Arizona, Tucson David Winston, RH (AHG), Director, Herbal Therapeutics Research Library, Herbalist & Alchemist, Inc., Washington, New Jersey

Bernd Wollschlaeger, MD Family practice physician; Clinical Assistant Professor of Medicine and Family Practice, University of Miami, School of Medicine, Florida

Jacqueline C. Wootton, MEd President, Alternative Medicine Foundation, Inc. Director, HerbMed® HerbMedProTM, Potomac, Maryland

ad hoc advisor:

David M. Eisenberg, MD Director, Osher Institute, Division for Research and Education in Complementary and Integrative Medical Therapies, Harvard Medical School, Boston, Massachusetts

ABC Board of Trustees

Michael J. Balick, PhD

Vice President and Director Institute of Economic Botany, New York Botanical Garden, Bronx, New York

Neil Blomquist

President, Sustainable Solutions Consulting Services, Sebastopol, California

Peggy Brevoort President, Brevoort, LLC, Kapa'au, Hawaii

Norman R. Farnsworth, PhD Research Professor of Pharmacognosy, Senior University Scholar, University of Illinois at Chicago

Steven Foster

President, Steven Foster Group, Inc., Eureka Springs, Arkansas

Fredi Kronenberg, PhD Prof. of Clinical Physiology, Columbia University, College of Physicians and

Surgeons, New York, NY Morris Shriftman

CEO, Mozart, Inc., Petaluma, California

John Weeks Editor and Publisher, *The Integrator Blog News* & *Report*, Seattle, Washington James A. Duke, PhD (emeritus) Botanical Consultant, Economic Botanist (USDA, ret.), Herbal Vineyard Inc. / Green Farmacy Garden, Fulton, Maryland

Mark Blumenthal (*ex officio*) Founder and Executive Director

American Botanical Council

Mark Blumenthal Founder and Executive Director

Janie Carter Receptionist/Administrative Assistant

> Courtney Cavaliere HerbalGram & HerbalEGram Assistant Editor

> Gayle Engels Web Content Administrator

Michael Finney HerbalGram Managing Editor

Sarah Fletcher Membership Coordinator

Lori Glenn HerbClip Managing Editor

Jessica Guffey Education Coordinator

Cassandra Johnson HerbalEGram Managing Editor

> Matthew Magruder Art Director

Denise Meikel Development Director

Jeremy Pigg Marketing Director

Perry Sauls Customer Service Coordinator

> Kelly E. Saxton Editorial Assistant

George Solis HerbClip Production Assistant

> **Cecelia Thompson** Finance Coordinator

Victoria Walton Executive Assistant

Margaret Wright Accounting Coordinator



Mission: Provide education using science-based and traditional information to promote responsible use of herbal medicine—serving the public, researchers, educators, healthcare professionals, industry, and media.

dear reader



In this issue, we profile sea buckthorn (*Hippophae rhamnoides*), an herb whose fruit and seed provide oils with a myriad of uses. (Sea buckthorn is not related to the laxative buckthorn bark, *Rhamnus cathartica.*) While we were nearing press time, I learned from some Canadian colleagues of a disappointing situation in Canada regarding recent attempts to cultivate sea buckthorn on a large agricultural scale for industrial processing of the fruit and seed. Apparently, the seed of an unproductive variety called Indian Summer had been sown, which resulted in an inability to harvest sea buckthorn fruits and seeds, thereby creating some serious losses for Canadian farmers.

Our Canadian friends recommended that we drop our plans to run sea buckthorn on the cover, arguing that past issues of *HerbalGram* featuring specific herbs have had a stimulatory effect on the amount of publicity each respective herb receives in the subsequent media coverage, eventually stimulating commercial activity and consumer demand. (This is not our intention, but it is an interesting perception by some ABC stakeholders, and possibly a reality.) They argued that Canadian agricultural producers would not be able to satisfy an increased demand; most of the current supply comes from China. We decided to continue with our plans, as is apparent from the Steven Foster photo of sea buckthorn that graces the cover of this issue.

On another note, one of the two extensive feature articles in this issue pertains to the long-held belief that plants reveal clues as to their medicinal actions. This "Doctrine of Signatures" (DOS) is found in many disparate cultures and goes back into the history of western herbal medicine to the ancient Greeks, probably even earlier. Ethnobotanist Brad Bennett examines much of the historical lineage of DOS and concludes that this is really not an *a priori* revelation of medicinal use but really a mnemonic developed by people in numerous cultures to remember traditional and empirical findings of such use.

Our other feature is on Kampo medicine, a subject we covered previously in an extensive article on Sho-saiko-to, a leading Kampo herbal formula with modern research that shows its benefit for liver dysfunction. Kampo is basically Chinese traditional medicine as it evolved in Japan over the past 1400 years. In Japan, as explained by lead author Gregory Plotnikoff, a western-trained physician who has spent considerable time in Japan, Kampo medicines are government-regulated and are produced according to western-style good manufacturing practices (GMPs). I remember visiting the production facilities of Tsumura, Japan's largest manufacturer of Kampo medicines, during a trip to Japan in 1995 and being impressed by the cleanliness of the facility. The place was so clean and neat—one could almost eat off the floor.

Aside from a high level of GMPs for their production, Kampo herbal medicines are often clinically tested according to western-style randomized controlled clinical trials, as Dr. Plotnikoff emphasizes in his article. It was thus somewhat of a surprise, and a disappointment, to learn recently from a friend and colleague that another Japanese Kampo medicine manufacturer's attempts to market its products to MDs in the United States has been received with considerable resistance, despite the company's attempts to provide educational seminars based on the growing amount of clinical research that continues to document the benefits and clinical efficacy of these formulations. Hopefully, some day soon, healthcare practitioners in North America will be using an increased variety of natural medicines, produced by appropriate GMPs and substantiated by a growing number of published clinical trials, regardless of the culture from which they are derived and their country of origin.

Mark Blummith



WHAT A BEAUTIFUL WASTE.

Our plastic shampoo bottles^{*} contain 80–95% post-consumer recycled material, keeping over 300,000 lbs. of plastic out of landfills each year.

BEAUTY IS AS BEAUTY DOES.[™]

*Sold at retail.

You can find Aveda toll-free at 866.823.1412 or aveda.com.

HERBAIGRAM The Journal of the American Botanical Council

Number 78 • May 2008 – July 2008



features

Doctrine of Signatures through Two Millennia by Bradley C. Bennett, PhD

According to the widely cited and somewhat controversial theory of Doctrine of Signatures, certain physical attributes of plants may serve as signs of how they can be used medicinally. Although this traditional tenet has been nearly universally rejected by modern scholars, many herbalists and physicians of previous centuries argued in support of the idea and noted numerous examples of plants with shapes, colors, or other attributes that appeared to indicate the plant's therapeutic value for a particular body part or condition. This article describes the history of the Doctrine of Signatures theory, including its major historic proponents and critics. The author suggests that there may be some value in reevaluating the Doctrine of Signatures theory, particularly in light of its usefulness as a mnemonic device of past cultures.

46

Kampo: From Old Wisdom Comes New Knowledge

by Gregory A. Plotnikoff, MD, Kenji Watanabe, MD, PhD, and Fumiko Yashiro

Japan's herbal medicine tradition, known as Kampo, includes over 100 multi-herb formulas regulated by the government as pharmaceutical preparations. Such herbal formulas are usually prescribed by conventional physicians, following physical examination procedures unique to Eastern medicine or Kampo practice. A few Kampo formulas are being clinically researched in the United States and have been designated as Investigational New Drugs by the US Food and Drug Administration. This article explores the history and foundations of Kampo, its current practice and research in Japan, and its burgeoning recognition and initial acceptance in the United States and other Western countries.

Image at left : Illustration of a mandrake root resembling a man's anatomy. Such mandrake roots were called Mandragora vir. Illustration from the Latin edition of [H]ortus Sanitatis. [Strasbourg: J. Prüss, not after Oct. 21, 1497.]

Image Courtesy of Hunt Institute for Botanical Documentation.



Meet Norman Farnsworth: Spotlight on ABC Board of Trustee

Employee Profile: Kelly E. Saxton

3rd Annual American Botanical Celebration Draws 250 Friends of ABC

ABC Acquires the Popular Herbal Database HerbMed

16 Grants & Awards

NPA Announces 2008 Award Recipients

ABC Receives 2007 Business Achievement Award for Education

Mark Blumenthal Deemed a Natural Legacy by NFM

19 Organization News

AHPA Offers Tools for Identifying Adulterated Bilberry Products

CRN Survey Indicates Most Physicians and Nurses Use and Recommend Dietary Supplements

Josephine Briggs Appointed New Director of NCCAM at NIH

22 World News

Chinese Herbal Formulation Being Tested for Cancer Treatment

Man Finds "100-year-old" Ginseng Root

26 Research Reviews

Cochrane Meta-Analysis Shows Benefits of Hawthorn Extracts for Treating Chronic Heart Failure

Cochrane Review Shows Preventive Effects of Cranberry against Urinary Tract Infections

Ginkgo Extract May Improve Cognition and Decrease Stress for Computer Users

Combination of Black Cohosh and St. John's wort Improves Menopausal Symptoms in Korean Women

Saffron in the Treatment of Premenstrual Syndrome

58 Legal & Regulatory

Trade Associations Request Withdrawal of FDA's Draft Guidance on Labeling Requirements of AER Act

60 Market Report

Herbal Supplement Sales in United States Show Growth in All Channels

64 Book Reviews

Commentary on Dan Hurley's book, Natural Causes Plant Spirit Shamanism Handbook of Cannabis Therapeutics

Herbal Products

The Vegetarian Solution

New Book Profiles

76 In Memoriam

David Maybury-Lewis Ann Yates

78 Calendar

79 Access

80 Classifieds



On the Cover Sea Buckthorn Hippophae rhamnoides Photo ©2008 Steven Foster

Contributing Writers

Stacey J. Bell Bradley Bennett Annette Dickinson Mariann Garner-Wizard Armando Gonzáles-Stuart Dennis McKenna Brenda Milot Jennifer Minigh Heather S. Oliff Marissa Oppel Gregory A. Plotnikoff Patrick Rea Kenji Watanabe Jackie Wootton Fumiko Yashiro

HerbalGram Staff

Mark Blumenthal Editor / Publisher

Michael Finney Managing Editor

Matthew Magruder Art Director

Courtney Cavaliere Assistant Editor

Kelly E. Saxton Editorial Assistant

Steven Foster Associate Editor

Rakesh Amin Legal & Regulatory Editor

Maureen Jablinske Proofreader

Lance Lawhon Advertising Sales 877-832-1881 lance@herbalgram.org



HerbalGram[®] is printed on recycled paper at Branch-Smith Printing, Ft. Worth, Texas

Published by the American Botanical Council, P.O. Box 144345, Austin, TX 78714-4345.

Subscriptions to *HerbalGram* are a benefit of ABC membership at every level. One year memberships: Individual \$50; Academic \$100; Professional \$150; Organization \$250; Retailer \$250; HerbClip Service \$500; Corporate; Sponsor. Add \$20 for memberships outside of the U.S. Student and Senior discounts are available. For information about Corporate or Sponsor Memberships, contact Denise Meikel at denise@herbalgram.org or 512-926-4900. © 2008 American Botanical Council, ISSN #0899-5648. Printed in the U.S.A.

The information in *HerbalGram*[®] is intended for educational purposes only and is not a substitution for the advice of a qualified healthcare professional. Although we attempt to ensure that advertising in *HerbalGram* is truthful and not misleading, the publication of an ad for a product or company in *HerbalGram* does not constitute an endorsement by ABC of the product or the company being advertised. Publication of an ad that makes a health claim or structure-function claim does not necessarily constitute an approval of that claim by ABC. Further, ABC has not reviewed any manufacturer's Good Manufacturing Practices.

Meet Norman Farnsworth: Spotlight on ABC Board of Trustee

By Kelly E. Saxton

Norman R. Farnsworth, PhD, is a legendary pharmacognosist, probably most famous for his idea of the pioneering natural products database NAPRALERT. This database was launched in 1975 and contains pertinent information about natural products, including medicinal plants, microbes, marine organisms, and fungi.¹

Professor Farnsworth received his PhD in 1959 from the University of Pittsburgh. He helped implement the first PhD program in pharmacognosy during his tenure there and was the first to chair this program after he became a professor. He taught at Pitt until 1970 and then moved to the College of Pharmacy at the University of Illinois at Chicago (UIC). At UIC he serves as a research professor of pharmacognosy, directs the pharmacognosy graduate program, directs the Program for Collaborative Research in the Pharmaceutical Sciences, and was named Senior University Scholar in 1988.¹ He developed the World Health Organization (WHO) Collaborating Center for Natural Products Research, one of the world's leading natural products and medicinal plant research centers, and he also serves as director of the UIC/National Institutes of Health (NIH) Dietary Supplements Research Center, funded by the National Center for Complementary and Alternative Medicine (NCCAM). As head of the pharmacognosy graduate program at UIC, he has mentored more than 100 PhD and 30 MS students. He said he has "personally" mentored about 30 PhD and 5 MS graduate students as well as mentored or co-mentored 30 post-doctoral fellows. He also co-founded the journal Phytomedicine, the International Journal of Phytotherapy and Phytopharmacology, along with Professor Hildebert Wagner, PhD, at the University of Munich, the journal's editor-in-chief. Among his many achievements and activities, Dr. Farnsworth is also

a founding Trustee of the American Botanical Council (ABC).

"In the international world of pharmacognosy and natural products research Norm Farnsworth is widely known and universally respected," said ABC Founder and Executive Director Mark Blumenthal. "He is a force of nature in the research world. ABC is proud and deeply grateful that Norm is one of our founding board members and that with all of his many responsibilities, organizations, and affiliations, he continues to participate in ABC policy and governance."

Dr. Farnsworth is currently the Distinguished Professor of

Pharmacognosy at UIC (as of 2001), and graduate students in his program have described the work environment he has created there as "a tight-knit family." One such previous student is Daniel Fabricant, PhD, who said that he chose UIC because of Dr. Farnsworth and his legacy there. "He's a straight shooter, he doesn't put on airs, and he's very disarming. He's easy to gravitate to because of these unique qualities," said Dr. Fabricant (oral communication, February 27, 2008). "He's been my mentor, a hero, and a friend."

"He has launched a thousand careers, including my own," said

Gail Mahady, PhD, a clinical pharmacognosist who also met Dr. Farnsworth during graduate school (e-mail, February 6, 2008). "For that I will be eternally grateful."

Dr. Farnsworth was also one of the founding fathers of the American Society of Pharmacognosy (ASP), which began in 1959. He made the initial negotiations to publish *Lloydia*, now the *Journal of Natural Products* (JNP), co-published by the American Chemical Society and ASP (*Lloydia* was the original name because of famous medicinal plant researcher John Uri Lloyd²). Dr. Farnsworth has served on JNP's Editorial Advisory Board since 1961.² He even earned two silver stars in the Korean War and was chosen by President Clinton to serve on the White House Commission on Dietary Supplement Labels. What's the reason for his "jack of all trades" competence?

"As [Farnsworth] always says, 'a pharmacognosist is a jack of all trades and master of none," said Dr. Mahady. "But I think he's a master in natural products."

Dr. Fabricant shared an anecdote as proof of Dr. Farnsworth's all-encompassing knowledge in which he brought a date to Farnsworth's 70th birthday party: "He said she wasn't right for me," said Dr. Fabricant. "A few weeks later we did indeed breakup, because, well, she wasn't right for me." Dr. Farnsworth tells this story to his students often to show that though they may not like his advice, he'd never steer them wrong.



Another phrase used to describe Dr. Farnsworth is the "quintessential renaissance man," as he was so-called in an editorial in JNP by Harry H.S. Fong, PhD, Geoffrey A. Cordell, PhD, and A. Douglas Kinghorn, PhD, JNP's editor-in-chief.³ "To fully depict Farnsworth, one needs to write a book," said Dr. Fong (e-mail, March 7, 2008). "Everyone who has come into contact with Norman Farnsworth has a 'Farnsworth story' or two to tell."

Dr. Fong, a friend of 53 years, shared several anecdotes about Dr. Farnsworth. One story involved Dr. Farnsworth's propensity for cigars.

"On every lab bench and in every office that Norm has spent any length of time at the University of Pittsburgh and at University of Illinois at Chicago, one will find a littering of chewed remains of Marsh Wheeling cigar butts," said Dr. Fong. "In fact, such mementos can even be found in Munich, Germany. When he was a visiting professor in Prof. H. Wagner's lab in 1966, I had the 'pleasure' of regularly mailing boxes of Marsh Wheeling cigars labeled as 'Investigational Material: Of no commercial interest' to the Institute in Munich."

Board of Trustee Member Norman Farnsworth Photo ©2008 University of Illinois at Chicago

However, when it comes to picking out Dr. Farnsworth's most important accomplishment, Dr. Fong could not choose: "It is not possible to pinpoint any one piece of Norm's work as being most influential and important," said Dr. Fong. "Rather, it is his body of work that will constitute his legacy."

ABC has created the Norman R. Farnsworth Excellence in Botanical Research Award in which ABC acknowledges international researchers for their contributions to medicinal plant research. Recipients thus far have been Joe Betz, PhD, of the Office of Dietary Supplements at the National Institutes of Health (2005); Prof. Edzard Ernst, MD, PhD, of the Peninsula Medical School of the University of Exeter in the UK (2006); and Prof. Hildebert Wagner of the University of Munich (2007).

Dr. Farnsworth and his wife Priscilla established a grant for a graduate student interested in natural products last year intended to be awarded in Fall 2008; their original contribution totaled \$10,000. The grant has grown to over \$29,000 through public donation, according to Lawton Snyder, director of development at University of Pittsburgh's School of Pharmacy (e-mail, March 11, 2008). Contributions to this award can be made by visiting www.pitt.edu. HG

References

- 1. Hunt L. Farnsworth named distinguished professor at University of Illinois. *HerbalGram.* 2001;53:16.
- Cavaliere C. Journal of Natural Products dedicates special issue to Farnsworth. HerbalGram. 2006;72:14.
- 3. Fong HHS, Cordell GA, Kinghorn AD. Special issue in honor of Norman R. Farnsworth. *Journal of Natural Products*. March 2006;69(3):311–313.

Employee Profile: Kelly E. Saxton

One of the most valuable traits among professionals working for nonprofit organizations like the American Botanical Council (ABC) is the ability to wear many hats. No one at ABC exemplifies that trait more than Kelly Saxton, our newest writer and editor. When we



Saxton

first hired Kelly, the most we could offer her was a part-time position in our publications department. Within a few months, Kelly's "can-do" attitude and multiple talents convinced us that employing her full-time was definitely in our best interests.

Kelly came to us in March of 2007 fresh from University of North Texas in Denton where she received a master of arts in English. Her master's thesis is titled *Stranger than Fact*, an examination of how fiction and nonfiction are commonly misused by creative writers. According to Kelly, fiction should have allegorical purpose and an accurate portrayal of the reality in which the story resides.

Among Kelly's first assignments at ABC was taking over management of book reviews for *HerbalGram*. Publishing book reviews is a multifaceted process that includes acquisition of newly published books, sending books to appropriate reviewers, and editing the reviews once they have been submitted. Kelly performed admirably in all stages of the process and began turning in quality book reviews for publication in *HerbalGram* within a matter of weeks.

Kelly has also proven herself as an able writer at ABC. To date she's published 25 articles for *HerbalGram*, spanning various topics in departments like World News, Grants and Awards, and In Memoriam. For HerbalEGram, our monthly online publication, she has bylines for 38 articles. Developing these articles requires a number of skills including the coordination of peer review, interviewing subject matter experts, fact checking, proofreading, and writing. As an editor, Kelly has worked with many of our contributing writers from industry, academia, and elsewhere who so graciously submit articles. Kelly has done an excellent job providing them with the necessary editorial support to publish their articles in *HerbalGram*.

Always looking to expand her areas of responsibility, Kelly has taken on a number of administrative projects that provide more efficient operations within the ABC publications department. An example of this is the maintenance and modification of the *HerbalGram* database. The database contains hundreds of records that allow us to track the status of the many articles we pursue for publication in *HerbalGram*. Kelly quickly trained herself in the ways of the database programming and expanded the capabilities of the database, allowing us to more efficiently track the status of other publications like HerbalEGram and our new Product-Specific Monographs series.

Kelly Saxton is one of the reasons why thousands of ABC members and other *HerbalGram* and HerbalEGram readers find so much benefit in these publications. It's not just the interesting subject matter that makes these publications meaningful; it's the dedication and skill of people like Kelly who add so much value to ABC's publications. HG

-Michael Finney

3rd Annual American Botanical Celebration Draws 250 Friends of ABC

The American Botanical Council (ABC) recently hosted its 3rd annual gala—the American Botanical Celebration and Awards Dinner—at the conclusion of the Nutracon Conference and just prior to Natural Products Expo West conference and trade show in Anaheim, California.

More than 250 leaders from across the academic and natural products community and around the world gathered on March 13, 2008, in the Anaheim Hilton Hotel for the dinner and awards ceremony honoring botanical excellence and celebrating ABC's 20th year of providing reliable educational information on herbs, medicinal plants, phytomedicines, and related plant-based ingredients.

ABC invited and honored its Sponsor and Corporate Members, as well as many others from academia and the natural products industry, who provide generous support to ABC's nonprofit educational programs.

"This is a night to celebrate not only ABC's 20th year, but also to celebrate you, the friends and companies who helped to bring ABC to this point." said Peggy Brevoort, president of the ABC Board of Trustees. "We can feel the excitement in the air of being together again; we are so very grateful to our sponsoring companies and so very happy to see you all here."

The evening began with a cocktail reception and live music, followed by a seated dinner and presentations. Much of the focus was geared toward ABC entering its 20th year of nonprofit educational service to the public, academia and educators, health professionals, the natural products industry, media, and many more, while homage was paid to those in the community that make ABC's mission possible.

ABC Founder and Executive Director Mark Blumenthal kicked off the program with a PowerPoint presentation of ABC's origin, its early years, and a review of many of ABC's numerous educational programs and publications. He also expressed his gratitude to all the ABC members and supporters present at the dinner, plus members of the ABC Board of Trustees, Advisory Board, and the new Director's Circle (a group dedicated to assisting ABC in locating new sources of revenue and finding new ways to promote its nonprofit educational mission).

"Tonight's celebration is not just about ABC and its successes," he said. "This event is also intended to acknowledge and appreciate the thousands of people, institutions, and companies that have created the ability for consumers and health professionals to gain access to a wider range of high-quality, researched, natural, plantbased ingredients and products that they can use to improve their health."

ABC's Botanical Excellence Awards were presented toward the end of the evening. (For details, please see sidebar on opposite page.) ABC honored the 2008 recipients of the annual James A. Duke Excellence in Botanical Literature Award and Norman R. Farnsworth Excellence in Botanical Research Award, as well as recipients of 2 new awards—the Varro E. Tyler Commercial Investment in Phytomedicinal Research Award and a Lifetime Achievement Award. The Lifetime Achievement Award, presented by ABC Trustee Steven Foster, was given to 100-year-old Chinese botanist Dr. Shiu-ying Hu.

"Dr. Hu dedicated her life to improving the life of the Chinese people through her love of plants; she was inspired by her parents, who saved her life in infancy with a Chinese herbal remedy," said Foster. "Considered one of China's leading taxonomists after retiring from Harvard University, she is one of the leading experts on Chinese food and medicinal plants. Dr. Hu has inspired generations of Chinese students and generously supported their education out of her own salary. An energetic centegenarian and a marvel of

vitality, ABC is delighted to honor Dr. Shiu-ying Hu."

The American Botanical Celebration was sponsored by Alkemists Pharmaceuticals, AM Todd Company, Aveda, Capsugel, Horphag Research & Natural Health Science Inc., Indena, Maitake Inc., Nature's Way, New Hope Natural Media, POM Wonderful, Tom's of Maine and the United Natural Products Alliance. The Celebration provided a venue for ABC's diverse leaders to meet, recognize accomplishments, and make plans to help ensure a positive future for herbal medicine.

Attendees enjoy the ABC Celebration at the Hilton Anaheim Pacific AB Ballroom. Photo ©2008 ABC



ABC Botanical Excellence Award Recipients for 2008

"The modern herbal medicine movement is the result of a continuous process based on the evolution of culture and technology, going back thousands of years," said Mark Blumenthal, founder and executive director of ABC. "It is vital that we stop to acknowledge those key people and organizations that have made and continue to make significant contributions to our modern knowledge-base regarding the benefits of herbs and phytomedicines."

ABC presented the following 4 awards during its 3rd Annual American Botanical Celebration and Awards Dinner 2008.

- James A. Duke Excellence in Botanical Literature Award Recipient—Google Book Search. This online tool has made hundreds of rare botanical texts and *materia medicas* available to the general public. Google Book Search is digitizing many of the world's old books and presenting them to the public in their entirety in searchable format. This project's contributions have increased the availability and awareness of out-of-print, limited access, and otherwise rare botanical classics going back to the 1700s—the contents of which have previously been available to only a few researchers and collectors.
- Norman R. Farnsworth Excellence in Botanical Research Award Recipient—Prof. Hildebert Wagner. A professor at the University of Munich, Dr. Wagner is internationally recognized for his work in the field of medicinal plant research and has authored over 800 original scientific and clinical papers, 30 review articles in peer-reviewed journals, and several books. He has contributed significantly to the field of plant immunomodulators (plants with a beneficial effect on the immune system), particularly through his extensive work with the genus *Echinacea*.
- Varro E. Tyler Commercial Investment in Phytomedicinal Research Award Recipient—Dr. Willmar Schwabe Pharmaceuticals. Based in Karlsruhe, Germany, and established in 1866, Schwabe is universally regarded as one of the world's leading manu-

facturers of phytomedicines and is responsible for developing numerous clinically-tested botanical extracts and preparations, most notably the world's first and most clinically-tested extract of the leaf of ginkgo (*Ginkgo biloba*). Many of the scientific methods and techniques developed and used by Schwabe during the past century have had a significant influence on today's phytopharmaceutical and biochemical research.

 ABC Lifetime Achievement Award Recipient— Dr. Shiu-ying Hu. A 100-year-old Chinese botanist, Dr. Hu was the first Chinese-born woman to receive a doctorate from Harvard University (in 1949) and has worked tirelessly throughout her life compiling monographs and revising the taxonomy of plants in China. She has authored over 160 scientific papers and numerous books—the most recent being Food Plants of China in 2005.



Mark Blumenthal presents the Varro E. Tyler Research Award to Rory Mahony, general manager of Nature's Way, who accepted the award on behalf of Schwabe Pharmaceuticals. Photo ©2008 ABC



ABC Acquires the Popular Herbal Database HerbMed

By Jackie Wootton

In February 2008, the American Botanical Council (ABC) obtained the rights to the popular herbal database HerbMed[®] and its enhanced professional version HerbMedPro[™] in an exclusive arrangement with the Alternative Medicine Foundation. This arrangement is intended to enhance the maintenance and further development of the database, a frequently used research tool by academic researchers, healthcare professionals, institutions, government agencies, industry, consumers, and others.

HerbMedPro has been a benefit of membership to all ABC members at the Academic level and higher for several years, and the database has long been praised by such members as a useful and important research tool. ABC will now assume control of the administration, financing, and marketing of the database. Through its acquisition of HerbMedPro, ABC intends to help optimize and expand the database's features, incorporate some of ABC's unique educational content into the database, and market the database to a wider audience.

What is HerbMed?

HerbMed is an interactive, structured herbal database providing hyperlinked access to the scientific and folk data underlying the use of herbs for health. An expert team categorizes and briefly summarizes available research information on each herb and provides links to corresponding abstracts in PubMed, the US National Library of Medicine's freely available interface for MEDLINE, or to other reputable online research resources such as BioMed Central, Cochrane Collaboration Reviews, and World Health Organization monographs. However, this is not all about contemporary research. Honoring and recording the varied herbal traditions and helping protect intellectual property rights have always been essential to the HerbMed mission and the database has been used to research prior use claims.



The demand is increasing for herbal experts.

Become one.

Study at the only school in the U.S. that offers a Bachelor of Science in Herbal Sciences.



www.herbal.bastyr.edu

When HerbMed was first developed in 1998, widespread skepticism still surrounded the efficacy and validation of information on botanical medicine. There was a clear need for impartial and commercial-free presentation of the underpinning sources of primary data on herbs, which can be browsed in depth and on which medical and policy decisions can be based. HerbMed continues to fill this important niche.

Essentially there is one underlying HerbMed database with, currently, 215 herbs presented by both Latin binomial and common name. There are two main ways to view the data: HerbMed and HerbMedPro.

HerbMed (http://www.herbmed.org/) is a subset of the database made freely available as html pages, providing full data on 30 top-selling herbs. The Live Updates feature enables users to access the latest published research directly from PubMed. This highly popular public service project will be retained on the original Web site. Gayle Engels, ABC education coordinator, and her team of interns and volunteers will be primarily responsible for updates to the 30 top-selling herbs. The public site will also feature an additional 3-5 herbs that have become popular in the news, which will rotate on and off monthly.

What is HerbMedPro?

HerbMedPro is the professional version of the database that provides access to all herbs in the database and is continuously updated. As well as the same Live Updates feature, HerbMedPro has an advanced search engine with the additional facility to search on herb actions and health indications. When in HerbMedPro the user directly links to the actual data, and pages are generated afresh from the underlying database in response to user queries. Paid access to HerbMedPro is through individual or organizational subscription; ABC membership at Academic level or higher; participating libraries; and through license or data streaming. Information on obtaining access can be obtained through ABC or from the herbmed.org Web site.

Future Developments

As well as increasing the rate of building the database—both adding new herbs and updating the existing herbs' information—there will now be an opportunity to develop two new features that had been incorporated into the design of the database but never realized. *Special Collections* of information will group together information on herbs for specific health issues (such as arthritis or diabetes), modalities (such as Ayurvedic or Native American medicine), or socio-demographic groupings (such as women or children). The second new feature involves creating records for specific *herbal mixtures*, such as the traditional Ayurvedic formulas Triphala or Amrit Kalash.

HerbMedPro will also be available on a *pay-per-day* basis from the ABC Web site; this new feature is designed for journalists, lawyers, researchers, educators, and others seeking information on specific herbs for academic papers, legal issues, and news stories. HG

Jackie Wootton, MEd, is president and executive director of the Alternative Medicine Foundation and founder of HerbMed. She will retain her position as director of HerbMed and HerbMedPro. Ms. Wootton has been a member of the ABC Advisory Board since 2005.









Join ABC and ACEER on their annual ethnobotanical trip to Peru, led this year by Steven Foster and Jerry Cott. CME and CEU credits available.

Botanical Medicines from the Amazon and the Andes

September 26th -October 5th, 2008

\$3,109* all inclusive from Lima

*Costs include domestic airfare in Peru, meals, lodging, ground transportation, baggage handling and workshops. International airfare is not included.



For more information, call 800-373-7105 or visit www.herbalgram.org

Grants & Awards

NPA Announces 2008 Award Recipients

By Kelly E. Saxton

The Natural Products Association (NPA) has announced the recipients of its annual awards that recognize major contributors to the natural products industry.¹ Recipients will be honored at the Natural MarketPlace 2008, the annual trade show and convention of NPA, held in Las Vegas, Nevada, July 17–19, 2008. The NPA awards include the following: President's Award, Burton Kallman Scientific Award, Rachel Carson Environmental Award, Industry Champion Award, Clinician Award, and Socially Responsible Retailer Award.

President's Award

This award recognizes those who have made outstanding contributions to the natural products industry.² The recipient, Rand Skolnick, is the president and CEO of Solgar Vitamin and Herb, a manufacturer of nutritional supplements since 1947, which was founded by Skolnik's grandfather.¹ "The Solgar[®] brand, the Skolnick family's brand, has long been revered as an example of quality in the industry," wrote Daniel Fabricant, PhD, NPA's vice president of scientific and regulatory affairs. "Mr. Skolnick is dedicated to that legacy and to the independent retailers as the carrier of that legacy" (e-mail, December 26, 2007).

Burton Kallman Scientific Award

This award, which recognizes significant contributions to the natural products industry, will be received by Professor Harry H.S. Fong, PhD.² Dr. Fong is a founder and president of NatProPharm Services, Ltd., a consulting company that researches and develops natural products and pharmaceuticals.¹ According to Dr. Fabricant, some of Dr. Fong's most notable contributions to the industry include his work on the American Botanical Council's (ABC) Ginseng Evaluation Program, his peer review of many publications on natural products research, and his work on the reference Botanical Dietary Supplements: Quality, Safety, and Efficacy with coauthors Gail B. Mahady and Norman R. Farnsworth (CRC Press, 2001). He was also a co-author of the World Health Organization (WHO) Monographs, another notable reference of 89 internationally peer-reviewed herbal monographs, which is now available in 3 volumes. Dr. Fabricant added that Dr. Fong, like the previous Kallman award recipients, displayed both a depth and breadth to his work and accomplishments in natural products research that is truly unique.

Rachel Carson Environmental Award

Robert Fox Jr. will receive this award, which recognizes those actively engaged with environmental preservation.² Fox is a partner at Cook+Fox Architects in New York City, a firm that specializes in the creation of aesthetically pleasing and environmentally friendly buildings.¹ Fox was described in an NPA press release as "one of the most highly respected leaders in the green building movement."¹

"Mr. Fox has effectively merged green building and corporate economics," wrote Dr. Fabricant. "He wants to do the right thing for the environment, the right thing for the balance sheets, and [he] uses that approach to set an example for the world to follow."

Industry Champion Award

Formerly the Crusader Award, this award recognizes those who have made contributions to the natural products industry beyond monetary gain.² This year's recipients are Gene Clark, Terry Lemerond, Neil Levin, and Judy Lindberg McFarland.

Gene Clark, CN, is the founder and owner of Gene's Health

Food, Inc. in Owensboro, Kentucky. Clark is well known for his motto "your health is your wealth" and his weekly radio show "It's Your Health."²

Terry Lemerond has over 40 years of experience in the health food industry and is the founder and president of Europharm, Inc., a creator of nutritional products.³ Lemerond is the author of *Seven Keys to Vibrant Health* (Impakt Communications, 1995), and he was the founder and former owner of Enzymatic Therapy, a leading dietary supplement manufacturer.

Neil Levin is the nutrition education manager and a product formulator for NOW Foods of Bloomingdale, Illinois.² He's also the president of the nonprofit organization Nutrition for Optimal Health Association, Inc. He is known for his prompt and extensive responses to erroneous and misleading media articles about the science related to dietary supplements.

Judy Lindberg McFarland, author and nutritionist, has a family legacy in healthy foods: her parents founded Lindberg Nutrition Service in 1949, and now the McFarland family owns Lindberg Nutrition in Torrance, California, as well as the mail-order version of Lindberg Nutrition, Nutrition Express.^{2,4} She is also the author of *Aging Without Growing Old: Essential Information for People of All Ages who Seek a Lifetime of Good Health* (Siloam Press, 2003).

Clinician Award

This award honors licensed healthcare practitioners who take holistic, non-invasive, and integrative approaches to their medical practices.² The recipients of this year's award include Aaron Katz, MD; Derrick Lonsdale, MD; and Jay Udani, MD.

Dr. Katz directs the Center for Holistic Urology in New York City. He developed the RT-PCR (Reverse Transcriptase Polymerase Chain Reaction) test to detect prostate cancer cells in blood, which was the first time a molecular assay was used to connote the stages of urologic cancers.^{2,5} He also wrote *Dr. Katz's Guide to Prostate Health: From Conventional to Holistic Therapies* (Freedom Press, 2005).

Dr. Lonsdale is a member of Preventive Medicine Group, where he guides patients to a healthier lifestyle by studying nutrition's effect on the biochemistry of the body.^{2,6} He's the author of *Why I Left Orthodox Medicine: Healing for the 21st Century* (Hampton Roads Publishing, 1994).

Dr. Udani is the CEO and medical director of Medicus Research, a contract research organization that conducts clinical trials on dietary supplements. He is also the director of the Integrative Medicine Program at Northridge Hospital Medical Center in California, and he recently agreed to serve as an Advisory Board member of ABC.⁷

Socially Responsible Retailer Award

This award is bestowed to companies that are actively involved in volunteering, education, environment, and health.² This year's recognized companies include Good Foods Grocery, LifeSource

Grants & Awards

Natural Foods, and Marlene's Market & Deli.

Good Foods Grocery in Richmond, Virginia, was founded in 1985 and is owned by Virginia Donnie Caffrey.^{2,8} These grocery stores regularly donate to nonprofit organizations in their communities and offer seminars to educate the public on nutrition.

LifeSource Natural Foods, Salem, Oregon, owned by Alex Beamer and opened in 1994, prides itself on providing a "broad and abundant selection of organic and natural foods" to encourage healthy lifestyles for customers.^{2,9}

With two locations in Washington, one in Federal Way and one in Tacoman, Marlene's Market & Deli was opened in 1976 by Marlene Beadle.¹⁰ To educate the public, these stores offer free cooking classes with topics such as gluten-free cooking, and they provide services like complimentary health consultations from naturopathic physicians.¹¹

Conclusion

ABC extends its congratulations to these individuals and companies. (The recipient of the NPA lifetime achievement award will be announced at a later date.²)

The NPA, formerly the National Nutritional Foods Association (NNFA), is a national trade association whose mission is to "advocate for the rights of consumers to have access to products that will maintain and improve their health, and for the rights of retailers and suppliers to sell these products," according to its Web site.

More information about NPA and its awards is available at www. naturalproductsassoc.org. More information about the Natural MarketPlace 2008 convention and trade show is available at www. naturalproductsassoc.org/tradeshow. HG

References

- Natural Products Association announces annual major award winners. 2008 awards honor outstanding contributions to the Natural Products Industry and community [press release]. Washington, DC: NPA; December 17, 2007.
- NPA Awards Page. NPA Web site. Available at: http://www.naturalproductsassoc.org/site/PageNavigator/ln_awards08. Accessed February 12, 2008.
- EuroPharm. About Us Web page. EuroPharm Web site. Available at http://www.europharmausa.com/about.asp. Accessed February 13, 2008.
- Nutrition Express. About Us Web page. Nutrition Express Web site. Available at http://www.nutritionexpress.com/policies/aboutus.aspx. Accessed February 13, 2008.
- Center for Holistic Urology. Our team page. Columbia University Web site. Available at http://www.holisticurology.columbia.edu/_ physicians/Katz.html. Accessed February 13, 2008.
- 6. Preventive Medicine Group. Derrick Lansdale, MD. Doctor's Page. Preventive Medicine Group Web site. Available at http://www. prevmedgroup.com/lonsdale.php. Accessed February 13, 2008.
- Saxton K. ABC Names New Advisory Board Members. *HerbalGram.* 2008;77:12–13.
- 8. Main page. Good Foods Grocery Web site. Available at http://www. goodfoodsgrocery.com. Accessed February 13, 2008.
- About us Page. Life Source Natural Foods Web site. Available at http://www.lifesourcenaturalfoods.com. Accessed February 14, 2008.
- 10. Our History page. Marlene's Market and Deli Web site. Ávailable at http://www.marlenesmarket-deli.com. Accessed February 14, 2008.
- Classes page. Marlene's Market & Deli Web site. Available at http:// www.marlenesmarket-deli.com/classes.htm. Accessed February 14, 2008.

ABC Receives 2007 Business Achievement Award for Education

By Kelly E. Saxton

The *Nutrition Business Journal* (NBJ) has selected the American Botanical Council (ABC) for one of its 2007 Business Achievement Awards for Education.¹ These awards were announced in the December 2007 issue of NBJ and will be presented at the 11th annual NBJ Summit, July 23-25, 2008, in Dana Point, California.²

"The American Botanical Council was selected because of the organization's longstanding commitment to educating consumers, healthcare professionals, researchers, educators, industry and the media on the safe and effective use of herbs and medicinal plants," wrote Katia Fowler, editor of NBJ at the time (e-mail, January 29, 2008).

According to Fowler, this award is based on nominations from the industry created at the NBJ Web site, through e-mail, and by word of mouth. The winners are then selected from this group of nominations by a committee composed of a mix of NBJ staff, members of the NBJ Editorial Advisory Board, and Don McLemore, New Hope Natural Media's vice president of standards.¹

"The committee welcomed the opportunity to honor ABC for its continued efforts and innovations in education on the brink of the group's 20th anniversary," wrote Fowler. "NBJ is grateful for the opportunity to celebrate the accomplishments of ABC in the industry."

NBJ previously honored ABC Founder and Executive Director Mark Blumenthal with a lifetime achievement award in 2005 for his work in the herb research and education community, which has had a positive impact on the dietary supplement industry. This award was covered in *HerbalGram* 68.³

NBJ is a publication of New Hope Natural Media, a division of Penton Media, that also publishes *Natural Foods Merchandiser*, *Functional Ingredients*, and *Delicious Living Magazine*. New Hope also produces the natural products industry's largest trade shows, Natural Products Expo West and Natural Products Expo East. Natural Products Expo East education and tradeshow will take place October 15–18, 2008, at the Boston Convention and Exhibition Center in Boston, Massachusetts. HG

References

- 1. NBJ Business Achievement Awards page. The New Hope Media Web site. Available at http://nbj.stores.yahoo.net/nbjawards071.html. Accessed February 1, 2008.
- 2. Executive Review and NBJ Business Achievement Awards. *NBJ*. December 2007; 12(12):1-10.
- 3. Silverman W. Nonprofit Organizations and Leaders Honored by NBJ. *HerbalGram.* 2005;68:18.

Grants & Awards

Mark Blumenthal Deemed a Natural Legacy by NFM

By Kelly E. Saxton

The *Natural Foods Merchandiser* (NFM) recently named Mark Blumenthal its 2008 Natural Legacy, an award bestowed to persons with high levels of experience and dedication to the natural products community. It is bestowed twice a year at the Natural Products East and Natural Products West trade shows. An in-depth story on Blumenthal is available in the March 2008 issue of NFM.¹ The full article can be found at www.naturalfoodsmerchandiser.com as well as additional information about NFM and the Natural Legacy Award.

"Mark was selected because he's probably one of the most respected men in the herbal industry," said Marty Traynor Spencer, the editor-in-chief of NFM (e-mail, February 29, 2008). "He has influenced so many people and done so much for the industry."

Mark Blumenthal is the executive director of the American Botanical Council (ABC), which he founded in 1988. He is also the editor and publisher of *HerbalGram*, which he started in 1977 as the newsletter *Herb News* that developed into the journal by 1983. With almost 40 years of expertise in herbs, medicinal plants, and natural products, Blumenthal has written hundreds of articles and book reviews in numerous professional, trade, and consumer publications.



"It truly is an honor for me to be considered a Natural Legacy," said Blumenthal. "For so many decades, our community has worked to provide natural solutions for humanity and the planet, based on traditional values and scientific substantiation. I am grateful to all those with whom I have worked and to those with whom I will work in the future as we proceed in our mission to create health and wellness in many sectors." HG

Reference

 Uhland V. Herbal Cowboy. *Natural Food Merchandiser*. March 2008; 29(3):38,42,44,46, 48,50.

Making Scents Magazine Providing vital information on: We welcome HerbalGram readers to receive a complimentary digital back issue Herbs of our beautiful full-color magazine. Essential Oils (602) 938-4439 Healing Foods makingscentsmag@hotmail.com Healthy Living Published by: Book Reviews INTERNATIONAL AROMATHERAPY Organic Product Reviews AND HERB ASSOCIATION

Organization News

AHPA Offers Tools for Identifying Adulterated Bilberry Products

By Courtney Cavaliere

The American Herbal Products Association (AHPA), the leading trade association in the United States dealing with herbal products, announced in December of 2007 that it has added new analytical tools and methods to its Web site to assist manufacturers in identifying materials labeled as powdered bilberry (*Vaccinium myrtillus*, Ericaceae) fruit extract that have been adulterated with Red Dye No. 2.^{1,2}

Concerns over bilberry extract misbranding and adulteration were raised when researchers from the company MediHerb in Australia found that the synthetic food dye Red No. 2, also known as "amaranth dye" (not related to the grain amaranth [*Amaranthus* spp., Amaranthaceae]) and banned from the US food supply since the 1970s, had been used to mimic the color of bilberries in ingredient samples labeled as powdered bilberry fruit extracts. The researchers published their findings in the Journal of Agricultural and Food Chemistry in 2006.³

The tools and methods that AHPA now provides on its Web site are intended to instruct and aid in the differentiation between genuine bilberry fruit extract and extracts adulterated with Red No. 2.¹ AHPA offers methods for detecting the presence of anthocyanins normally present in bilberry through pH manipulation and by using high performance thin layer chromatography (HPTLC). AHPA further provides information on additional resources regarding bilberry.²

"AHPA is providing methods to help enable proper evaluations of materials where identity and quality issues are known to exist," said Steven Dentali, PhD, AHPA's vice president of scientific and regulatory affairs.¹ "By providing these analytical methods, we will help companies make better ingredient purchasing decisions."

The methods and tools provided by AHPA should enable manufacturers to detect this known adulterant dye in bilberry products, but they may not necessarily detect all possible product defects. Proper implementation of HPTLC analysis of ingredients labeled as bilberry extract by qualified personnel, however, is likely to reveal significant variations from the normally expected chemical composition of bilberry fruit extract.

According to an article published by *NutraIngredients.com* in October of 2007, unconfirmed reports have been made of mulberry

(*Morus* spp., Moraceae) fruit and black bean (*Phaseolus* spp., Fabaceae) skin being used to enhance the anthocyanin content of extracts labeled as bilberry.⁴ These materials, or possibly some other misbranded ingredient, were the likely starting material for the "bilberry" samples analyzed by MediHerb.³

A study conducted by researchers from the Italian botanical extract manufacturer Indena and published in the *Journal of AOAC International* in 2007 found that only 15% of 40 finished bilberry products tested in the study (sold in Europe, Japan, and the United States) met their specifically-stated label claims for anthocyanin content.⁵ Moreover, 10% of the products were found to contain no anthocyanins at all. In its study, Indena recommended a new liquid chromatography method for identifying and quantifying anthocyanins and anthocyanidins in commercial bilberry extracts and products, which has been included in European and Italian pharmacopeias and is under evaluation by the United States Pharmacopeia.⁴ AHPA's tools and methods for determining adulteration of bilberry extracts with amaranth dye are available on the organization's Web site at http://www.ahpa.org/Default.aspx?tabid=164. AHPA member companies MediHerb and the Swiss analytical equipment and methods supplier CAMAG assisted in the development of the tools and methods.¹

AHPA similarly provided methods and tools for determining the purity of powdered *Hoodia gordonii* (Asclepiadaceae) stems in September of 2007.⁶ These tools and methods are also available on the AHPA Web site. HG

References

- AHPA provides industry tools for authentic bilberry [press release]. Silver Spring, MD: American Herbal Products Association; December 10, 2007.
- Bilberry. American Herbal Products Association Web site. Available at: http://www.ahpa.org/Default.aspx?tabid=164. Accessed January 22, 2008.
- Penman KG, Halstead CW, Matthias A, et al. Bilberry adulteration using the food dye amaranth. *J Agric Food Chem.* 2006;54(19):7378-7382.
- Daniells S. Indena reports new technique for bilberry purity standards. *NutraIngredients.com.* Available at: http://www.nutraingredients.com/ news/ng.asp?n=80637-indena-bilberry-hplc-anthocyanin. Accessed January 22, 2008.
- Cassinese C, DeCombarieu E, Falzoni M, Fuzzati N, Pace R, Sardone N. New liquid chromatography method with ultraviolet detection for analysis of anthocyanins and anthocyanidins in *Vaccinium myrtillus* fruit dry extracts and commercial preparations. *Journal of AOAC International.* 2007;90(4): 911-919.
- 6. Hoodia Methods. American Herbal Products Association Web site. Available at: http://www.ahpa.org/Default.aspx?tabid=165. Accessed February 12, 2008.



Bilberry, Vaccinium myrtillus. Photo ©2008 Steven Foster

CRN Survey Indicates Most Physicians and Nurses Use and Recommend Dietary Supplements

By Courtney Cavaliere

A recent survey of healthcare professionals, administered under the direction of the Council for Responsible Nutrition (CRN), has found that the majority of US physicians and nurses both use dietary supplements and recommend such products to their patients.¹ This survey represents the first consumer research project of CRN's "Life . . . supplemented" consumer wellness campaign, which was launched in September of 2007.

Of the 1,177 healthcare professionals who completed the online survey, 79% of physicians and 82% of nurses claimed that they recommend dietary supplements to their patients. Moreover, 72% of physicians and 89% of nurses claimed to personally use supplements either regularly, occasionally, or seasonally.

"This survey, which is a first for our industry, shows that healthcare professionals believe that dietary supplements are part of a healthy lifestyle," said CRN President and CEO Steve Mister, in a CRN press release.¹ "Not only are they taking supplements for their own benefit, but they're also recommending them to their patients. The approval of our products from reputable, respectable healthcare professionals, such as doctors and nurses, should be encouraging to consumers who already incorporate supplements into their wellness routine, and a wake-up call to those who haven't yet started to do so."

Of the 72% of physicians who claimed to use supplements, 85% stated that they also recommend them to their patients. Interestingly, of the 28% who stated that they do not use supplements, 62% still claimed to recommend them to patients. The survey found that obstetricians/gynecologists (OB/GYNs) are the most likely physicians to recommend supplements (91%), followed by primary care physicians (84%). The majority of respondents (72% physicians and 87% nurses) claimed that they personally ask their patients about supplement use.

"The fact that physicians and nurses are clearly using supplements should demonstrate to consumers that they can talk to their physicians about using supplements," said Judy Blatman, CRN's vice president of communications (oral communication, December 5, 2007). However, she added that the survey's results show that female physicians are more likely to recommend supplements than their male counterparts (85% vs. 77%) and that female physicians are more likely to personally inquire about their patients' use of supplements (81% vs. 71%). Blatman stated that it is

Bachelor of Science in Ethnobotany now offered at Frostburg State University

Become part of a discipline that bridges people and plants: make the environmental connection with Ethnobotany.

For more information, contact: Sunshine Brosi 301.687.4213 slbrosi@frostburg.edu important that all healthcare professionals recognize that supplements are becoming more mainstream, and it is imperative that healthcare professionals be open to dialoguing with their patients about supplement use. "This needs to be done in a non-judgmental way so that patients can feel comfortable asking questions," she added.

Nearly half of the physicians and nurses who reported taking supplements indicated that they primarily do so for "overall health/ wellness benefits." Primary care physicians, OB/GYNs, and nurses appear to recommend supplements for "general well-being/prevention" as often as for particular conditions, whereas other medical specialists seem more likely to recommend supplements for specific conditions. The results that have been released from the survey do not specify the type of supplements (i.e., herbal, conventional nutritional, etc.) most commonly used and/or recommended by physicians and nurses, although the results do show that 72% of physicians and 88% of nurses say it is a good idea for patients to take a multivitamin.

Blatman stated that the survey's results seem to indicate that healthcare professionals may not regard individual clinical trials that denounce the benefits of herbs or supplements as definitive studies. She explained that several arguably negative studies regarding dietary supplement efficacy have been published in medical journals in recent years and that healthcare professionals are typically known for relying upon published data in their clinical practices. The continued use and recommendation of supplements by healthcare professionals, however, implies that such practitioners may recognize that one trial with negative outcomes does not necessarily override the totality of evidence supporting a particular supplement's benefit.

Additionally, Blatman argued that the survey's results indicate that more research money and efforts should be directed towards supporting the science behind dietary supplements and educating healthcare professionals about such products. "[Healthcare professionals have] indicated that they're interested in supplements and interested in learning more about supplements, and the supplement industry should play more of a role in those efforts," said Blatman.

Further data about the healthy lifestyle choices of nurses and doctors obtained through the survey was released by CRN in April 2008. HG

Reference

1. Study finds physicians and nurses both take and recommend dietary supplements [press release]. Washington DC: Council for Responsible Nutrition; November 13, 2007.

70

FROSTBURG STATE UNIVERSITY | FROSTBURG MARYLAND

Organization News

Josephine Briggs Appointed New Director of NCCAM at NIH

By Courtney Cavaliere

The National Institutes of Health (NIH) announced on January 24, 2008, that Josephine Briggs, MD, will serve as the new director of the NIH's National Center for Complementary and Alternative Medicine (NCCAM).¹ Dr. Briggs previously served as a director for another NIH institution, and she most recently worked as the senior scientific officer at the Howard Hughes Medical Institute.

"I am honored to be selected to lead NCCAM and welcome the opportunity to develop further the NIH investment in this exciting field of biomedical investigation," said Dr. Briggs, according to a recent NIH press release.¹ "Alternative approaches to health and wellness are of enormous public interest, and we need a strong portfolio of science in this area. The NIH has already taken significant steps to build research programs to explore the potential of CAM. I look forward to working with scientists and the CAM community as well as my colleagues across the NIH to strengthen our understanding of the potential of CAM and to examine the opportunities for integration of proven CAM approaches into our nation's healthcare delivery."

Dr. Briggs has published more than 125 research articles and has received the Volhard Prize of the German Nephrological Society. Her research interests include the renin-angiotensin system, diabetic nephropathy, and the effect of antioxidants in kidney disease. She was a professor of internal medicine and physiology at the University of Michigan from 1993 to 1997, after which she served as director of the Division of Kidney, Urologic, and Hermatologic Diseases in the NIH's National Institute of Diabetes and Digestive and Kidney Diseases until 2006.

"We are pleased to have Dr. Briggs return to NIH to lead NCCAM," said Elias A. Zerhouni, MD, NIH director, according to the NIH press release.¹ "She has been a leader in trans-NIH activities and her in-depth understanding of NIH and translational research will bring new opportunities to the study of CAM."

However, the news of Dr. Briggs' appointment was met with some vocal disappointment. CAM expert and ABC Board of Trustees member John Weeks sent an open letter to Dr. Briggs in his online publication "The Integrator Blog," in which he pointed out that NCCAM has once again appointed a leader of NCCAM who has no previous experience with CAM modalities.² (Weeks referred to the previous NCCAM director, the late Stephen E. Straus, MD, who also came to the Center with no previous CAM experience.) Weeks suggested that Dr. Briggs immediately familiarize herself with CAM modalities through available resources and work to enhance "whole systems" and "whole practice" initiatives, which he argued currently languish at NCCAM. Weeks' full comments are available at The Integrator Blog Web site (www. theintegratorblog.com).

NCCAM's first director, Dr. Straus, stepped down from his

"I am honored to be selected to lead NCCAM and welcome the opportunity to develop further the NIH investment in this exciting field of biomedical investigation" position at NCCAM in November of 2006 for health reasons.^{1,3} Ruth L. Kirschstein, MD, assumed temporary leadership of NCCAM while the NIH searched for a new director of the Center. Dr. Straus died in May of 2007. A tribute article regarding his life and contributions to the CAM field was published in *HerbalGram* issue 75.⁴ HG

References

- Josephine Briggs, MD, named director of NIH's National Center for Complementary and Alternative Medicine [press release]. Bethesda, MD: National Institutes of Health; January 24, 2008.
- Weeks J. Oops, they did it again: open letter to the new NCCAM director, Josephine Briggs, MD. *Integrator Blog.* January 24, 2008. Available at: http://theintegratorblog.com/site/index.php?option=com_ content&task=view&id=409&Itemid=189. Accessed January 25, 2008.
- 3. Cavaliere C. Stephen Straus steps down as NCCAM's first director. *HerbalGram.* 2007;74:15.
- 4. Saxton K. Stephen E. Straus, 1946-2007. HerbalGram. 2007;75:77.



Special Cultural Event

First time in the United States Lecture and Tea Ceremony performed by Ueda O-lemoto 15th generation headmaster of the Ueda Soko-style Tea Ceremony

Sponsored by Maruzen Pharmaceuticals of Hiroshima, Japan

Register and submit abstracts at www.nature-ceuticals.org

World News

Chinese Herbal Formulation Being Tested for Cancer Treatment

By Kelly E. Saxton

A drug called Ban Zhi Lian, which is derived from a Chinese medicinal herb, received international attention in late 2007 when it was covered in *Time Magazine*.¹ Ban Zhi Lian (BZL101) is an aqueous extract from the aerial part of barbed skullcap (*Scutellaria barbata*, Lamiaceae). Developed by Bionovo, Inc. of Emeryville, California, BZL101 is being tested for use in breast cancer treatment.

This herbal preparation was used in a Phase I clinical trial in 2001 at Cancer Research Network in Plantation, Florida.¹ In this trial, 21 patients with stage 4 metastatic breast cancer took 12 grams a day of BZL101 for a year.^{1,2} The results show that 4 of 16 patients (25%) had stabilization in their disease for 90 days, and 3 of 16 patients (19%) had stabilization for 180 days.^{1,2,3} Five patients had objective tumor regression, including one patient who had a partial remission based on the study's modified response evaluation criteria in solid tumors (RECIST).

BZL101 appears to work by singling out tumor cells. The drug causes the cells to undergo apoptosis, programmed cell death, by preventing cancer cells from undergoing glycolysis, a process of glycogen breakdown responsible for 85% of the cell's energy.^{1,2} From the Phase I trial, the investigators concluded that BZL101 had a favorable toxicity profile and recommended its further development for cancer treatment.

"There has been a shift in the standards of metastatic breast cancer treatment, as the oncology community moves to prescribing oral drugs at a lower toxicity, for both efficacy and quality of life reasons," wrote Mary Tagliaferri, MD, president, co-founder and chief medical officer of Bionovo (e-mail, December 6, 2007). "BZL101 would seem to fit this new standard as an oral drug designed from the outset for minimal side effects and proven favorable efficacy, even in a heavily pretreated patient population."

BZL101 is now undergoing a multi-center, Phase I & II, openlabel, non-randomized, dose escalation trial to assess safety, feasibility,



optimal dosing and preliminary efficacy at 9 clinical sites throughout the United States, according to Katherina Audley, director of corporate media and communications at Bionovo (e-mail, December 6, 2007) and Bionovo's Web site.³ The next trial is slated to enroll 80 women with breast cancer, 40 who are estrogen receptor positive (ER+) and 40 who are negative (ER-). For the meantime, however, the dose escalation portion of the study has been extended because of positive effects, according to a recent Bionovo press release.⁴

"We had expected to reach the maximum tolerated dose earlier, and then transition to the full Phase II component of the trial with that dose. Instead, we have seen very favorable tolerability data at the higher doses, and we are continuing to escalate the dose," said Dr. Tagliaferri.⁴ "As a result of this positive news, we will continue the dose escalation, so long as we continue to see favorable tolerability and safety, after which we will transition to the full Phase II study component."

In general medical research, Phase I clinical trials address the safety and tolerability of a drug and determine the maximum tolerated dose or the appropriate biological active dose. Phase II clinical trials focus on determining a drug's efficacy; however, in cancer research Phase I trials can also measure efficacy as an outcome in a descriptive fashion.

According to Charlotte Gyllenhaal, PhD, research assistant professor at the University of Illinois at Chicago and associate editor of *Integrative Cancer Therapies* (a peer-reviewed journal dealing with non-conventional cancer treatments): "It is certainly a breakthrough in cancer research for a company to be testing an herbal extract for its cancer treatment properties, since herbs may eventually turn out to be easier to tolerate than pure compound anticancer drugs. This is a breakthrough that was made possible by the FDA's new Botanical Drug classification, and it is great to see that in action in the cancer area" (e-mail, December 5, 2007). Dr. Gyllenhaal is referring to the FDA guidance document that establishes FDA policy in addressing botanicals as drugs in the United States.⁵

Dr. Gyllenhaal is a member of the American Botanical Council Advisory Board. More information about BZL101 is available on the Web at www.bzl101.com and www.bionovo.com. HG

References

- 1. Carr C. Can ancient herbs treat cancer? *Time Magazine*. October 15, 2007; 170(16). Available at http://www.time.com/time/health/arti-cle/0,8599,1671684,00.html?cnn=yes. Accessed October 26, 2007.
- Rugo H, Shtivelman E, Perez A, et al. Phase I trial and antitumor effects of BZL101 for patients with advanced breast cancer. *Breast Cancer Res Treat*. September 2007;105(1):17-28. Available at http://www.bionovo.com/media/ mediaarchives/Bionovo_Breast_Cancer_Research_Treatment.pdf. Accessed November 1, 2007.
- Clinical programs page. Bionovo Web site. Available at http://bionovo.com/ home.php?menu=clinicalprograms&submenu=BZL101. Accessed January 8, 2008.
- 4. Bionovo announces positive developments in on-going phase 1/2 cancer drug trial; patients showing excellent tolerability at higher doses in dose escalation [press release]. Emeryville, California: Bionovo; February 20, 2008.
- Food and Drug Administration, Center for Drug Evaluation and Research. Guidance for Industry: Botanical Drug Products [Chemistry]. June 2004. Available at www.fda.gov/cder/guidance/index.htm. Accessed January 8, 2008.

NOW! Fruit Made Easy



You don't need to be a clinical nutritionist to understand the importance of fruit when living a healthy lifestyle. Fruit is loaded with the vitamins, minerals, enzymes and antioxidants you need to stay in tip-top health. But as we all know, eating fruit throughout the day, every day, is often easier said than done. At NOW, we don't think it has to be.

New Mangoni[™] from NOW[®] is the one-of-a-kind "SuperFruit" Antioxidant Cocktail that unites juice extracts from eight of today's most nutrient-rich and antioxidant-rich fruits. With an ORAC value that exceeds 80,000 per bottle, Mangoni[™] delivers up to 300% more polyphenols than many of today's leading polyphenol-rich products, contains the equivalent of three servings of fruit per 1 fl.oz. serving, and has a taste that makes it easy to get exactly what you need to thrive.

- Superior Antioxidant Protection
- Over 80,000 ORAC Value Per Bottle
- Exotic, Tropical Taste
- Contains the equivalent of 3 Servings of Fruit Per 1 fl. oz. Serving

High Quality Does Not Have to Equal High Price.

395 South Glen Ellyn Road, Bloomingdale, IL 60108 • 888.669.3663 • www.nowfoods.com "These statements have not been evaluated by the FDA. This product is not intended to diagnose, treat, care, or prevent any disease



Nutrition for Optimal Wellness.

World News

PHYTOCHEMICALS

ChromaDex

We Know Natural Products

NEW ChromaDex[™] 2007/2008 Catalog

Get your copy today.

With over 3500 phytochemicals available, ChromaDexTM is your one-stop source for Phytochemicals.

Our product line includes:

- Primary Standards
- Secondary Standards
- Reagent Grade Standards
- AHP-Verified Standards
- Botanical Reference Materials - BRMs[™]
- Reference Standard Kits
- Analytical Kits
- Bulk Phytochemicals
- Discovery Libraries



To get your copy of the NEW ChromaDex[™] Catalog, please contact us at: tel. 949-419-0288 fax. 949-419-0294 email. sales@chromadex.com

Man Finds "100-year-old" Ginseng Root

By Kelly E. Saxton

Larry Harding has grown American ginseng (*Panax quinquefolius*, Araliaceae) for over 45 years. Harding's Ginseng Farm, located in Friendsville, Maryland, in the Appalachian Mountains, has over 70 acres of wild simulated ginseng (ginseng grown in an environment designed to simulate conditions of the wild environment). Harding's ginseng originated from harvested wild roots and seeds the Harding family collected up to 50 years ago. When it comes to ginseng, Harding has just about seen it all. So in the fall of 2007, when recreational harvester Roger Welch brought him a wild ginseng root that weighed just under a pound (lb), Harding wasn't too surprised, but confessed it was quite unique. "Most ginseng roots are a fraction of an ounce," said Harding (oral communication, November 6, 2007). "Normally there are 200-330 roots per dry [wild] lb."

According to Robert L. Beyfuss, American ginseng specialist for Cornell University Cooperative Extension, properly dried ginseng roots (of all types) weigh about one third of their original weight.¹

Welch had just started drying the root when Harding saw it; the drving process normally takes 8 to 10 days. Though the root had lost a little weight, this didn't significantly affect its value. In September 2007 wild ginseng was selling for \$400-500 per dry lb.² As of November 2007, according to Harding, it was selling for over \$800 per dry lb, and he equates hunting it to "digging for gold." Beyfuss attributed the jump in prices to the unprecedented drought in most of Appalachia that caused most plants to mature sometime in July before the season opened (e-mail, November 15, 2007). Bevfuss also added, "There is no surplus

24 | HerbalGram 78

ginseng in the pipeline left over from last year and the domestic market, particularly Koreans, wanting fresh root is very strong."

Welch, a Maryland native, has been



Wild ginseng root dug by Roger Keith Welch in Garrett county, Maryland, which had 3 to 4 prong tops (a 12 pronger) and weighed 15 ounces. It is between 50 and 100 years old. Photo ©2008 Roger K. Welch

2008

World News

hunting ginseng for 47 years. He retired 6 years ago from a job at a paper company and said the money in ginseng is fairly good (oral communication, November 9, 2007). Yet when he found what he calls a "12-pronger" in Western Maryland, he didn't know what he had. "It was raining and muddy. There were a couple of tops so I thought it was several roots all clumped together," said Welch. "I even stopped and showed it to a couple of my buddies-telling them it was one root-and I thought I was fooling them. Turns out I wasn't!" According to Beyfuss, ginseng plants usually have from 2 to 4 palmately compound leaves which are often called prongs (e-mail, November 9, 2007). Mature ginseng plants usually have 3 prongs, very vigorous plants may have 4 prongs, 5-prong plants are very rare, and a 12-prong plant is "phenomenal."

When Welch was able to remove the mud, he saw it was indeed one piece. He chose Harding to appraise the root because his farm was only 25 miles away and Harding is somewhat of a local ginseng expert (e-mail, November 15, 2007). "I didn't know Larry previously, but he buys and sells a lot of ginseng and has been doing it for a long while," Welch said. Later Welch returned to the same area in western Maryland to see if he could find another large root but could not. Welch said the roots he usually finds are hardly over 30 years old, and the average root a ginseng hunter finds and keeps is between 5 and 10 years old because ginseng has to be at least 5years-old to be legally harvested. Welch estimated that this root was anywhere from 50 to 100 years old.

The roots Harding sees are 5 to 30 years old and seldom over 50. Harding estimated that Welch's root, because of its size and age rings, was around 100 years old. However, according to Beyfuss, ginseng roots can be roughly determined by counting the numbers of abscission scars on the rhizome and not necessarily the age rings (e-mail, November 9, 2007). He said this particular root was hard to gauge due to the fact that it had multiple tops, and it is easier to determine the age of a root with a single rhizome and one stem. He estimated that this root could be 100 years old, but was most likely closer to 50.

Harding was only aware of one case with roots over 100 years old. In 2005, the Yonhap news agency of Korea reported that a set of 6 ginseng roots, including specimens up to 110 years old, sold at an auction for \$120,000 to two brothers who wanted to help treat their mother's ailing knees.3 Harding added that, since a ginseng's medicinal value increases with age, this root could be worth \$1,000 or more to someone interested in its medicinal properties, though one might also want it for sentimental reasons. However, Harding did not buy the coveted root himself. "It's not worth over \$1000 to me," said Harding. "It doesn't have sentimental value to me, but to someone else it could be worth a lot."

It certainly has sentimental value to Welch, who traditionally gives his ginseng money to his wife as a Christmas gift. "I've given her about \$5,000 this year—she's pretty happy," said Welch (oral communication, November 9, 2007). This, however, didn't include money for the 12-prong root. Even with offers from \$1,200-\$1,500, Welch said he isn't selling. Instead he intends to give it to a museum like the Smithsonian, or some other institution that would display it and keep it intact.

"The Smithsonian's not too far from me, and if I wanted to see my root, I'd be able to," said Welch. "I took that out of the ground without breaking one limb. I'd like to put it in a place where it won't be used." HG

References

- Beyfuss R. Economics and marketing of ginseng. *Agroforestry Notes Forest Farming*-4. July 1999;15:1–4.
- Moses S. Kitzmiller man digs up enormous ginseng root. *Cumberland Times-News*. September 9, 2007. Available at http://www. times-news.com/archivesearch/local_story_ 252004801.html. Accessed September 11, 2007.
- 3. Wild ginseng roots sell for 125 million won. *Yonhap news agency*. November 28, 2005;17:51.

CONTRACT SERVICES

hromaDe

We Know Natural Products

ChromaDex[™], the leader in Phytochemicals now offers an extensive range of contract services to the natural products industry

- Contract Analysis
- Contract Research
- Contract Isolation
- Method Development
- Method Validation
- Process Development
- Raw Material Selection
- Microbiological Testing

Our expertise in Phytochemicals, with over 3500 compounds in our library has allowed ChromaDex^{TV} to build an unparalleled list of analytical methods.

BIOASSAY SERVICES

NEW ChromaDex[™] is pleased to announce the launch of an EXTENSIVE range of Bloassay Services. Call us today for a copy of our new Bloassay Services brochure.

ChromaDex[™] is your one-stop source for Phytochemicals and Contract Services.



10005 Muirlands Blvd Suite G, First Floor Irvine, CA 92618 USA

tel. 949-419-0288 fax. 949-419-0294 email. sales@chromadex.com

www.chromadex.com

Cochrane Meta-Analysis Shows Benefits of Hawthorn Extracts for Treating Chronic Heart Failure

Reviewed: Pittler MH, Guo R, Ernst E. Hawthorn extract for treating chronic heart failure. *Cochrane Database of Systematic Reviews*. 2008; 1: Art No.: CD005312. DOI: 10.1002/14651858. CD005312.pub2.

Hawthorn (*Crataegus monogyna, C. laevigata,* Rosaceae) is one of the most popular herbal products in the United States, ranking 24th in total single herb sales for 2007 in mainstream food, drug, and general retail stores (see Market Report on page 60 for details). It is marketed in some European countries as a prescription medicine. Hawthorn extract is used to treat chronic heart failure, and extracts of hawthorn leaf and flower are approved by Germany's Commission E for the treatment of New York Heart Association (NYHA) stage II heart failure.¹ This systematic review of 14 double-blind, placebo-controlled, randomized clinical trials on hawthorn extract in the treatment of chronic heart failure by the Cochrane Collaboration includes a meta-analysis of the data from 10 clinical trials.

Through database searches, hand searches of bibliographies and personal libraries, and expert contacts, the authors identified clinical trials on the treatment of NYHA-categorized chronic heart failure in adults taking hawthorn leaf with flower extract monopreparations. The databases searched included the Cochrane Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, CINAHL, AMED, and Digital Dissertations. The trials were read and assessed by 2 independent reviewers, with a third reviewer resolving any disagreements. The quality of the trial methods, including randomization methods and control for selection bias, were assessed and assigned letter grades.

Fourteen trials with a total of 1,110 patients were included in the review. The majority used parallel study designs, and 2 trials used cross-over designs. The trials included a range of 30 to 209 subjects. The hawthorn preparations used in the clinical trials were dosed at 160-1,800 mg/day of either (1) Crataegus Special Extract WS 1442 (Dr. Willmar Schwabe GmbH; Karlsruhe, Germany*), which is standardized to 18.8% oligomeric procyanidins, or (2) the standardized LI 132 hawthorn extract (Faros* 300, Lichtwer Pharma GmbH, Germany**).

In the majority of the trials, hawthorn extract was used as an adjunct to conventional medications for chronic heart failure, including diuretics (4 trials) and ACE inhibitors (3 trials). The trial durations were 3-16 weeks, and 26 weeks was the longest follow-up period. There was a great deal of variation in methodological quality among the trials. The authors write that 6 of the 14 trials "reported adequate sequence generation" and that 3 trials reported "adequate allocation concealment." The maximal workload, assessed using bicycle ergometry with an increase of 25 Watts every 2 minutes until the patient needs to stop, was the most common outcome.

The meta-analysis of trials reporting maximal workload showed a significant increase in patients receiving hawthorn extract, when compared with those receiving a placebo (n=380, 95% CI 0.71 to 10.00, P<0.02). Five trials assessed the pressure-heart rate product (the systolic blood pressure in mm Hg multiplied by the heart

rate per minute and divided by 100). The meta-analysis showed a significant reduction in the pressure-heart rate product (n=264, -19.22 mmHg/min, 95% CI -30.46 to -7.98). Two trials assessed exercise tolerance, and they showed a significant increase (n=98, +122.76 Watt X min, 95% CI 32.74 to 212.78). The studies also showed an improvement in symptoms including fatigue and shortness of breath. Two trials used the van Zerssen symptom score, and they showed a significant effect favoring hawthorn extract (n=239, WMD -5.47, 95% CI -8.68 to -2.26). One trial showed a significant reduction in left ventricular ejection fraction (n=40, WMD% 1.70%, 95% CI 0.88 to 2.52). Another trial found no significant effect on 6-minute-walk test between the placebo and hawthorn extract group. Only one trial reported mortality rates, with 3 deaths in the hawthorn group and one in the placebo group. The most commonly reported adverse events were dizziness, vertigo, and gastrointestinal complaints. (Note: Because this was not a safety review, there can be no cause-effect relationship inferred between hawthorn extract and the reported adverse effects. Hawthorn has a well-documented history of safe use, and common adverse events are possible in almost any study population.) Five trials reported no adverse events in subjects receiving hawthorn extract.

The authors recommend that rigorous, long-term clinical trials assessing clinical outcomes including cardiac death, as well as physiological outcomes, are needed. They warn against self-treatment by heart failure patients and recommend against hawthorn extract as a good candidate for over-the-counter or dietary supplement sales (insofar as patients are not able to self-diagnose or adequately self-treat such conditions). However, reported adverse events are mild and transient, and one study showed no interaction between hawthorn extract and digoxin, a common heart failure drug. Data from animal studies do indicate the potential of interactions between hawthorn extract and cardiac glycoside, anticoagulant, and antihypertensive drugs, although clinical research is needed for confirmation. The authors conclude that "The best evidence that is available suggests that hawthorn extract has significant benefits, compared with placebo, as an adjunctive treatment for patients with chronic heart failure." HG

—Marissa N. Oppel, MS

References

Blumenthal M, Busse WR, Goldberg A, Gruenwald J, Hall T, Riggins CW, Rister RS, eds. Klein S, Rister RS, trans. *The Complete German Commission E Monographs-Therapeutic Guide to Herbal Medicines*. Austin, TX: American Botanical Council; Boston: Integrative Medicine Communications; 1998.

^{*} WS 1442 is imported and sold in the United States as HeartCare® by Nature's Way of Springville, UT, a wholly-owned subsidiary of W. Schwabe.

^{**} Faros is not imported and sold in the United States.



Echinamide[®] Echinacea Echinacea purpurea



Lomatium (root) Lomatium dissectum



Astragalus (root) Astragalus membranaceus



Reishi Mushroom Ganoderma lucidum



Licorice (root) Glycyrrhiza glabra

Anti-V Formula with Clinically Proven ECHINAMIDE®

Broad Spectrum Immune System Support*

Anti-V, a proprietary formula that harnesses the effectiveness of clinically proven ECHINAMIDE[†] with the healing properties of lomatium, astragalus, reishi, and licorice.

[†]Patented triple-standardized phyto-medicinal (Echinamide®) supported with two Phase II clinical trials demonstrating statistically significant and reproducible evidence of effectiveness as an immune system enhancer.*¹⁻⁴

¹ Phytother Research 2005 Aug; 19(8):689-94.

² Journal of Clinical Pharmacy and Therapeutics 2004 Feb; 29(1):75-83.

³ Journal of Nutritional Biochemistry 2002 Aug; 13(8):487.

⁴ International Immunopharmacology 2002 Feb; 2(2-3):381-7.



*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.





NATURE VERIFIED BY SCIENCE[™]

Does your supplier GUARANTEE PESTICIDE-FREE?



Every batch?



Every ingredient?

At Ethical Naturals, every product we sell is tested and guaranteed PESTICIDE-FREE





www.ethicalnaturals.com 866-459-4454 info@ethicalnaturals.com

Research Reviews

Cochrane Review Shows Preventive Effects of Cranberry against Urinary Tract Infections

Reviewed: Jepson RG, Craig JC. Cranberries for preventing urinary tract infections (Review). *Cochrane Database of Systematic Reviews*. 2008;DOI:10.1002/14651858. CD001321.pub.4.

Urinary tract infections (UTIs) are diagnosed when a threshold of bacteria in the urine is exceeded (generally greater than 100,000 cells/mL). UTIs consist of cystitis (bacteria in the bladder), urethral syndrome, and polynephritis (infection of the kidney). Symptoms associated with UTIs include pain during urination, cloudy urine, blood in the urine, back pain, and fever. Infants, pregnant women, the elderly, patients with spinal cord injuries, and immunocompromised patients are at increased risk of UTIs. Although UTIs occur in both males and females, they are 50 times more common in females than in males, likely because females have a shorter urethra, which allows easier passage of bacteria into the bladder.

Generally, UTIs are easily treated with antibiotics. Cranberries (Vaccinium macrocarpum, Ericaceae) have been used widely for many years, usually in the form of cranberry juice, to prevent and treat UTIs. The preventive mechanism has not been definitively established; however, the functioning theory is that constituents of cranberries (fructose and proanthocyanidins) prevent bacteria (particularly Escherichia coli) from sticking to the uroepithelial cells that line the wall of the bladder. The objective of this review was to evaluate the effectiveness of cranberries in preventing UTIs in high-risk populations.

The following 2 hypotheses were tested: (1) cranberry juice and other cranberrycontaining products are more effective than placebo or no treatment in preventing UTIs in susceptible populations, and (2) cranberry juice and other cranberrycontaining products are more effective than other treatments in preventing UTIs in susceptible populations. A literature review of several databases (MEDLINE, EMBASE, and the Cochrane Central Register of Controlled Trials) and the Internet was conducted. The purpose was to identify randomized clinical trials (RCTs) of studies that evaluated the effectiveness of cranberry products in preventing UTIs relative to placebo, no treatment, or other treatment. Studies of the treatment of asymptomatic or symptomatic UTIs and of UTIs not caused by bacterial infection were excluded. The primary outcome measure was the number of UTIs in each study group confirmed by a catheter or mid-stream specimen of urine or a "cleancatch" specimen. Secondary outcome measures were compliance with therapy



Research Reviews

and adverse side effects. The 2 authors of this review independently assessed the studies identified to determine eligibility for this review, and they independently extracted pertinent information (methods, participants, study design, interventions, and outcomes) from those studies that were deemed eligible. The quality of the studies was assessed on the basis of the Cochrane criteria.

Ten studies (n = 1049 subjects) were included in the review: 5 crossover studies and 5 parallel-group studies. Detailed tabular material is provided in this review for each of the 10 studies. In seven of the studies, cranberry or cranberry-lingonberry juice was compared with water, juice, or placebo. In the remaining studies, cranberry tablets were compared with placebo. Five of the studies were conducted in the United States, two in Canada, one in the



Cranberry, Vaccinium macrocarpon. Photo ©2008 Steven Foster

Netherlands, one in Finland, and one in Scotland. Details of the studies follow:

- 1 study lasted 1 month (30 mL cranberry juice/day)
- 1 study lasted 9 weeks (400 mg cranberry in capsule form)
- 2 studies lasted 3 months (400 mg cranberry in capsule form or 300 mL cranberry juice/day)
- 5 studies lasted 6 months (300 mL cranberry juice/day, 50 mL cranberry-lingonberry juice 5 days/week, 2 g cranberry juice concentrate, or 15 mL cranberry juice/kg/day)
- 1 study lasted 12 months (250 mL cranberry juice 3 times/day or one concentrated juice tablet 2 times/ day).

The methodologic quality of all the trials was satisfactory. Four of the studies were included in a meta-analysis, and all of these studies showed that cranberry consumption significantly reduced the incidence of UTIs at 12 months (relative risk: 0.66; 95% CI: 0.47 to 0.92) compared with placebo or control. Only one of the 6 studies not included in the meta-analysis showed a significant effect of cranberry consumption on reducing the incidence of UTIs. Side effects (bad taste being the most common) were common in most of the studies, and the dropout rate was high in many of the studies. The authors of this review conclude that "evidence from four RCTs indicates that cranberry products can be effective in reducing UTIs. However, it may only be effective in certain sub-populations." Some evidence indicates that cranberry juice may be effective in women with symptomatic UTIs, but the evidence is inconclusive for the elderly. Moreover, the evidence is unclear as to the amount and concentration of cranberry that needs to be consumed and the duration of consumption for the intervention to be effective. A major challenge in comparison of these types of studies are the lack of measurements of the total proanthocyanidins (PAC) in the clinical materials used in each study, as these components are the presumed clinically active ingredients. Additional "properly designed studies" with PAC-standardized materials are needed to clarify these uncertainties. HG



The industry's most innovative ingredients:



The Premium SOOTHING Ingredient for all your JOINT CARE FORMULAS



Salicate 🐨



ORAC-15,000[™] Highest ORAC Value for your Supplements, Drinks and Teas

Tested and Guaranteed PESTICIDE-FREE





www.ethicalnaturals.com 866-459-4454 info@ethicalnaturals.com

[—]Brenda Milot, ELS

recapture the feeling.



25 vitamins and minerals. 24 fruits and vegetables. 18 amino acids. 14 green foods. 12 organic mushrooms. 12 digestive enzymes. Plus citrus bioflavonoids, omega 3/6/9 fatty acids and invigorating herbs. Alive!" Whole Food Energizer'" provides a complete abundance of energizing nutrients from pure and natural sources. More than just a multi-vitamin. It's nutrition you can feel.

AVAILABLE AT HEALTH & NUTRITION STORES



Research Reviews

Ginkgo Extract May Improve Cognition and Decrease Stress for Computer Users

Reviewed: Kaschel R, Hoerr R, Kresimon J, Rychlik R. The influence of ginkgo special extract EGb 761[®] on the performance of healthy subjects at computer workstations—open-label clinical study in pre-post design with a control group. Translation from J *Pharmako u Ther.* 2007;Jan:3-9.

Clinical studies have shown that ginkgo (*Ginkgo biloba*, Ginkgoaceae) can improve cognitive performance and stress tolerance in healthy people and in elderly people with dementia. Studies using the special ginkgo extract EGb 761[®] have demonstrated improvements in brain function, emotional stability, mental capacity, attention, and coping with stress in healthy people. People who work at computer workstations for much of the day may suffer from health disorders such as fatigue, lack of concentration, irritability, and mental stress. The purpose of this study was to investigate the effects of EGb 761 on the performance of healthy people at computer workstations and to identify suitable tests to evaluate those effects.

The study was an open-label pilot study involving healthy people who were 45 years of age or older and who spent at least 50% of their workday in front of a computer. The study was conducted by researchers from the University of Osnabruck in Germany. Following a 2-week run-in period in which the subjects were trained on specific computer tests, the subjects completed baseline measurements of reaction capacity, sustained attention, eyesight sensitivity, stress perception, and quality of life. After the baseline measurements, subjects were allowed to choose if they wanted to be in the control group receiving no ginkgo or in the treatment group receiving 120 mg of ginkgo extract EGb 761 twice daily for 8 weeks (Tebonin[®], Dr. Willmar Schwabe GmbH & Co., Karlsruhe, Germany). All subjects repeated the baseline tests after the 8week treatment period ended, and the tolerability of EGb 761 was assessed.

The study enrolled 104 subjects, 84 of which completed the study according to the protocol. In the sustained attention test (a measure of long-term concentration) the number of errors made by subjects in the ginkgo group decreased significantly after 8 weeks compared to the control group (P = 0.035). Perceived stress scores improved significantly in the ginkgo group (P = 0.007), and the "vitality" portion of the quality of life evaluation improved significantly in the ginkgo group (P = 0.004) compared to the control group. No significant differences were found between the 2 groups for reaction capacity after the 8-week treatment period. No serious adverse events were reported for either group, and the tolerability of EGb 761 was judged to be good.

The authors conclude that EGb 761 treatment produced clear objective and subjective improvements in concentration, perceived stress, and quality of life in people working at computer workstations much of the day. The authors assess the results to be particularly significant for people over 45 years of age, because that population group is more likely to perceive computer work as more stressful than a younger population. The authors recommend that a more extensive double-blind trial should be conducted using the tests identified in this study.

The results of this study are consistent with previous studies showing improvements in cognitive performance and stress tolerance. However, the authors provide results for only one of the eight "domains" of the quality of life evaluation (the SF-36 Health Survey). It is not known if ginkgo supplementation had any effect on the remaining seven domains, and this would be of interest to other researchers and readers.

The authors state that the results show that improvements relevant to everyday functioning at work may be attained with EGb 761 treatment, in conjunction with an increase in stress reduction and quality of life.

Since the participants could choose which group they wanted to be in, there is a high likelihood that those entering the ginkgo group had a strong bias towards the efficacy of ginkgo. The control group is not only a control for ginkgo but also a control for a placebo effect. There is no way to know if the improvements were due to ginkgo or placebo effect. This study was financed by the ginkgo manufacturer and supported by an insurance association. HG

-Heather S. Oliff, PhD

The next, important step for you.

With the knowledge you already have of herbal medicine, there may be only one place left for you to learn. Tai Sophia Institute. Our **Master of Science in Herbal Medicine** is the nation's first. It is designed and delivered by an international faculty which includes Simon Mills and James A. Duke. Our graduates possess the scientific knowledge and clinical skills to define this field for many years to come. Advanced standing is available. Now enrolling for Fall 2008. Call **800-735-2968, ext. 6647** or email to **admissions@tai.edu**.

We invite you to join us at a Graduate School Open House on Saturday, June 28 from 9:30 am - 12:30 pm.



Combination of Black Cohosh and St. John's wort Improves Menopausal Symptoms in Korean Women

Reviewed: Chung D-J, Kim H-Y, Park K-H, et al. Black cohosh and St. John's wort (GYNO-plus®) for climacteric symptoms. *Yonsei Med J.* 2007;48(2):289-294.

The Heart and Estrogen/Progestin Replacement Study and others have concluded that hormone replacement therapy (HRT) is effective for climacteric (menopausal) symptoms, but HRT also has serious side effects such as an increased risk of breast cancer and cardiovascular disease. Hence, many women choose to use alternative treatments such as black cohosh (*Actaea racemosa* syn. *Cimicifuga racemosa*, Ranunculaceae). Many climacteric symptoms have psychological components, and St. John's wort (*Hypericum perforatum*, Clusiaceae) is used to treat mild to moderate depression. The authors hypothesized that a fixed combination of black cohosh and St. John's wort may be more effective than monotherapy.

Korean peri- or post-menopausal women (n = 89; 77 completed the study) with typical climacteric symptoms, intact uteruses, and abstention from HRT for 3 months participated in this doubleblind, placebo-controlled, multicenter study in Seoul, Korea. Patients received either Gyno-plus[®] (n = 42; Jin-Yang Pharm, Seoul, Korea) or placebo (n = 35) for 12 weeks. Gyno-plus (264 mg tablet) contains 0.0364 mL black cohosh extract (equivalent to 1 mg terpene glycosides) and 84 mg St. John's wort dried extract (equivalent to 0.25 mg hypericin with 80% methanol). Climac-



teric complaints were evaluated with the Kupperman Index. In addition, vaginal maturation (to measure vaginal atrophy), serum hormone levels, cholesterol, and triglycerides were evaluated.

The mean Kupperman Index scores at 4 and 12 weeks were significantly lower in the Gyno-plus group than in the placebo group ($P \le 0.002$). At study end, the average decrease in Kupperman Index was 20.1 points in the Gyno-plus group and 8.2 points in the placebo group (P < 0.001). Vaginal dryness and reduced libido did not significantly improve. The mean hot flash score was significantly lower in Gyno-plus treated patients. There was no significant difference in vaginal atrophy, hormone profiles, total cholesterol, low density lipoprotein (LDL) cholesterol, or triglyceride levels between groups post-treatment. High density lipoprotein (HDL) cholesterol decreased in placebo-treated patients and increased in Gyno-plus-treated patients. The most common adverse event was gastrointestinal complaints (treatment group 12.85%; placebo 9.5%).

The authors conclude that the combination of black cohosh and St. John's wort in Gyno-plus was effective at improving typical climacteric symptoms in Korean peri- and post-menopausal women. The authors point out that efficacy can vary among different preparations. It is interesting that the authors hypothesized that the combination would be better than monotherapy but did not test this hypothesis by having a group of women taking only black cohosh. The manufacturer of Gyno-plus funded the study, which may explain why they did not include the monotherapy group. Hence, this study succeeds in demonstrating product efficacy, but it does not establish that the combination product is more efficacious than black cohosh monotherapy. However, efficacy of a combination product over monotherapy was shown recently in a large-scale (n= 6141), controlled, observational study over 6 months using an isopropanolic black cohosh extract (iCR, Remifemin®; Schaper & Brümmer GmbH & Co KG, Salzgitter, Germany) or the herbal combination of iCR + St. John's wort (Remifemin plus).¹ By using the Menopause Rating Scale (MRS), the herbal combination (n= 3114 patients) was more effective in menopausal patients with pronounced mood complaints (MRS subscore Psyche: depressive moods, nervousness, irritability) compared to the black cohosh monotherapy (n= 3027). HG

-Heather S. Oliff, PhD

Reference

 Briese V, Stammwitz U, Friede M, Henneicke-von Zepelin H. Black cohosh with or without St. John's wort for symptom-specific climacteric treatment-results of a large-scale, controlled, observational study. *Maturitas*. 2007;57(4):405-414.

Saffron in the Treatment of Premenstrual Syndrome

Reviewed: Agha-Hosseini M, Kashani L, Aleyaseen A, et al. *Crocus sativus* L. (saffron) in the treatment of premenstrual syndrome: a double-blind, randomized and placebo-controlled trial. *BJOG*. 2008;115(4):515-519.

Premenstrual syndrome (PMS), characterized by mood and behavioral changes, is among the most common health problems reported by women of reproductive age. Although the etiology is not fully understood, the symptoms of PMS are suggested to be partly associated with changes in the production of the neurochemical serotonin. Manufactured in the brain from the amino acid tryptophan, serotonin is involved in mood stability.

Clinical trials have indicated that saffron (dried stigma of *Crocus sativus*, Iridaceae) is effective in the treatment of mild to moderate depression via serotonergic mechanisms. The aim of this randomized, double-blind, placebo-controlled trial was to investigate whether saffron could relieve symptoms

of PMS. The saffron used in this study was identified by the Department of Cultivation and Development, Institute of Medicinal Plants, Tehran, Iran. Dried, ethanolic extracts of the stigma of *C. sativus* were encapsulated, with each capsule containing 15 mg of saffron extract. Women aged 20 to 45 years with regular menstrual cycles and PMS symptoms for at least 6 months were randomly assigned to receive placebo or 30 mg of saffron extract per day (15 mg twice a day) for 2

menstrual cycles (cycles 3 and 4). This daily dose of saffron was based on previous studies demonstrating an antidepressant effect of saffron extract in the treatment of depression conducted by one of the authors, Professor S. Akhondzadeh.

Women underwent screening in cycle 1. To complete baseline measurements, they returned for a second visit at the end of cycle 2 (premenstrual stage—as close as possible to 2 days prior to the onset of menstruation). Daily symptom ratings were completed throughout the duration of the trial (cycles 1-4). Participants returned for 2 more visits for depression ratings by a psychiatrist (at the premenstrual stage of cycles 3 and 4). The effect of treatment was assessed by comparing baseline (cycle 2) scores from the Premenstrual Daily Symptom Report (DSR) and the Hamilton Depression Rating Scale (HDRS) with the premenstrual scores after 2 cycles of treatment with intervention (cycles 3 and 4).

A total of 50 women were randomized in the trial (25 women in each group). Three women discontinued the trial due to personal reasons (1 from the saffron group and 2 from the placebo group). No significant differences were identified between women in the saffron or placebo groups with regard to basic demographics. Furthermore, there were no significant baseline differences between the 2 groups in DSR ratings or HDRS scores.

During cycles 3 and 4, the women in the saffron group demonstrated a significant improvement as compared with the placebo group in the DSR ratings (P<0.001) and in the HDRS scores (P<0.001). The authors defined a responder as a woman showing 50% reduction in severity of symptoms. With respect to the DSR ratings, the number of responders were 19 (76%) in the saffron group and 2 (8%) in the placebo group (P<0.0001). Likewise, for



Saffron Crocus sativus Photo ©2008 stevenfoster.com

the HDRS scores, there were 15 (60%) responders in the saffron group and 1 (4%) in the placebo group (P<0.0001).

In general, the adverse events were dispersed evenly between the saffron and placebo groups. However, appetite changes and headache occurred more in the saffron group, albeit these differences were not significant. None of adverse effects were severe.

The results of this study suggest that saffron extract may be effective in the treatment of PMS. However, because this is likely the first published study of saffron in the treatment of PMS, it is not possible to draw any comparisons with other studies. The authors suggest that the tolerable adverse effect profile of

saffron may suggest the application of saffron as an alternative treatment for PMS. Further studies are warranted and should include different doses of saffron, a larger number of participants, and inclusion of a follow-up period. In addition, a comparison study using a known agent (i.e., fluoxetine [Prozac®]) that works via the serotonergic system would help delineate any serotonergic-related mechanisms of action by saffron. HG

—Jennifer Minigh, PhD

Endobiogénie Clinical Phytotherapy & Aromatherapy Seminar June 26 - 28, 2008 <u>Pocatello, Idaho</u>

Topics: Endobiogenic Approach to Neurology, Migraine Headache, Arterial and Cerebral Risk Factors, Circulatory Insufficiency, Herb Profiles, Patient Example.

Presenters: Jean M. Bokelmann, M.D. & Jean-Claude Lapraz, M.D.

Tuition: \$350; Mention HerbalGram and receive a \$50.00 tuition discount. Nationally recognized CEU's offered through Idaho State University.

To reserve space or for more information call 1-877-470-8400 or e-mail: info@eimcenter.com or visit us at www.eimcenter.com




bstract. The Doctrine of Signatures is widely cited in the literature on medicinal plants. According to the theory, certain physical attributes of plants serve as signs to indicate their therapeutic value. Pliny the Elder, Dioscorides, and other early classical scholars allude to the theory, but it was best developed by Paracelsus and his followers during the Middle Ages. German religious mystic Jakob Böhme and English herbalists Nicholas Culpeper and William Cole were among its strongest proponents. Beginning in the mid 1500s, scholars began to criticize the notion of signatures. Flemish physician and herbalist Rembert Dodoens was perhaps the first to challenge its validity. English naturalist John Ray also was critical of the theory. Modern scholars are nearly universal in discounting the Doctrine of Signatures, calling it absurd, fanciful, far-fetched, and pseudo-scientific. Nonetheless, researchers continue to refer to the doctrine as the reason that many plants are selected for medicinal use. Careful evaluation of the Doctrine of Signatures shows that it did not function as an *a priori* clue to therapeutic value. Instead, it served as a mnemonic, which was especially important in preliterate cultures.

Introduction

The Doctrine of Signatures (DOS) is a widely cited theory that purportedly explains how humans discovered the medicinal uses of some plants.^{1,2} According to DOS, physical characteristics of plants (including shape, color, texture, and smell) reveal their therapeutic value. R.H. True, a plant physiologist and historian, succinctly explained the doctrine: "... every plant having useful medicinal properties bears somewhere about it the likeness of the organ or of the part of the body upon which it exerts a healing action."3 Examples that fit this classical morphological definition include the coiled roots of Indian snakeroot (Rauvolfia serpentina, Apocynaceae) for snakebite,⁴ the clinging fruits of wild comfrey (Cynoglossum virginianum, Boraginaceae) to improve memory,⁵ and the phallic-looking roots of mandrake (Mandragora officinarum, Solanaceae) for masculine diseases.⁶

DOS also has a more specific meaning. Some believe that the Creator gave physical clues about the value he imbued to plants. In 1669 Oswaldus Crollius wrote:

All herbs, flowers, trees, and other things which proceed out of the Earth, are books, and magick signs, communicated to us, by the immense mercy of God, which signs are our medicine. ... for every thing that is intrinsic, bares the external figure of its occult property ...7

DOS is ubiquitous. Anthropologist William Balée and others have suggested that it is a near universal phenomena.8 According to the 19th century surveyor of the Grand Canyon area, J.W. Powell, "All American tribes entertain a

Image at left: Illustration of Mandrake from Rembert Dodoens' Stirpium historiae pemptades sex. Antverpiae: Ex officina Plantiniana, apud Balthasarem et Ioannem Moretos, 1616.

Images at far left: During the historical era that the Doctrine of Signatures theory was popular, Mandrake root was often categorized by the human gender it was thought to most anatomically resemble. Mandrake root resembling the male gender was called Mandragora vir (bottom left illustration). Mandrake root resembling the female gender was called Mandragora femie (top left illustration). [H]ortus Sanitatis. [Strasbourg: J. Prüss, not after Oct. 21, 1497.]

All 3 images Courtesy of Hunt Institute for Botanical Documentation.



Hild Comfrey Cynoglossum virginianum

The fruits of wild comfrey tend to cling to skin or fur. This attribute of the plant led to its association as a memory aid under the Doctrine of Signatures theory.

profound belief in the doctrine of signatures ..."9 B.E. Read, an early 20th century pharmacologist, wrote that DOS is "to be found extensively quoted in the Orient and Occident."10 It is frequent in medieval botanical texts "owing to the widespread belief in the doctrine of signatures."1 DOS is alluded to in classical Greek literature on medicinal plants. Elements of the doctrine are present in the writings of Hippocrates, though he also advocates the principle that opposites are cured by their opposites-the antithesis of DOS.¹¹ Furthermore, Fielding Garrison argues that with respect to animal based medicines, Greek medicine did not employ the principle that likes are cured by their likes.¹² DOS appears in the English Restoration literature. In Paradise Lost, the 17th century English poet John Milton described the Archangel Michael's use of eyebright (Euphrasia officinalis, Orobanchaceae) to restore Adam's vision.¹³ Eyebright's signature is its striped petals, supposedly reminiscent of bloodshot eyes.¹⁴ DOS appears in current literature, as well. In Harry Potter and the Chamber of Secrets, Madam Pomfrey revives petrified students with a potion made from mandrake (M. officinarum) roots.¹⁵ Mandrake's signature



Echium vulgare

Giambattista Della Porta wrote that viper's bugloss "bear[s] seeds like a viper's head, and these are good to heal their venomous bitings."

is found in its roots, which resemble the human body.¹⁶ Other examples of DOS appear in Table 1 on pages 38-39.

European herbalists used the yellow latex of celandine (*Chelidonium majus*, Papaveraceae) to cure liver ailments. In her account of celandine, the 20th century English herbalist and author Maude Grieve wrote, "The old alchemists held that it was good to 'superstifle the jaundice,' because of its intense yellow colour."¹⁷ The Quichua of lowland Ecuador alleviate menstrual bleeding with the red-tipped leaves of *Columnea ericae* (Geseneriaceae) [BC Bennett, unpublished field notes]. Chinese esteem ginseng (*Panax ginseng*, Araliaceae) roots because of their human-like rhizomes.¹⁸ The medieval Swiss chemist and physician Paracelsus declared, "Flowers that are of a burning color like the rose (*Rosa* spp., Rosaceae) are apt to heal inflammations; those which bear the color of a face heated by wine, as the rose does, obviates drunkenness."¹⁹

According to 17th century English physician Nicholas Culpeper, who compiled an extensive list of medicinal plants, the aptly named liverwort "... is an excellent remedy for such whose Livers are corrupted by surfets which causeth their bodies to break out, for it fortifies the Liver exceedingly and makes it impregnable."²⁰ (The botanical identification of Culpeper's liverwort is uncertain. Possible candidates include *Marchantia polymorphia*, Marchantiaceae; *Peltigera canina*, Peltigeraceae; and *Hepatica nobilis*, Ranunculaceae.)

William Cole, England's foremost DOS exponent, wrote: Wall-nuts have the perfect Signature of the Head: The outer husk or green Covering, represent the Pericranium, or outward skin of the skull, whereon the hair groweth, and therefore salt made of those husks or barks, are exceeding good for wounds in the head. The inner wooddy shell hath the Signature of the Skull, and the little yellow skin, or Peel, that covereth the Kernell, of the hard Meninga and Pia-mater, which are the thin scarfes that envelope the brain. The Kernel hath the very figure of the Brain, and therefore it is very profitable for the Brain, and resists poysons; For if the Kernel be bruised, and moystned with the quintessence of Wine, and laid upon the Crown of the Head, it comforts the brain and head mightily.²¹

Reverend Edward Stone reportedly believed that English willow (*Salix* spp., Salicaceae), a tree that thrived in moist environments, could cure rheumatism, which was associated with similar environments.²² Plants that resembled semen or human sexual organs, were considered to be aphrodisiacs. Cucumbers (*Cucumis sativus*, Curcurbitaceae) and carrots (*Daucus carota*, Apiaceae) were employed in China and Korea to increase sexual potency.²³ The red signature of beet (*Beta vulgaris*, Amaranthaceae) root affirmed its use in China to treat dysmenorrhea.¹⁰

Plants that exude gums were utilized in treatments for purulent conditions. Quaking aspen (*Populus tremuloides*, Salicaceae) leaves were employed to treat palsy. Evergreens and long-lived plants supposedly increased longevity. Heliotrope (*Heliotropium* spp., Boraginaceae) and marigold (*Calendula officinalis*, Asteraceae) were prescribed so that subjects might "learn their duty to their sovereign." Both plants are phototropic. King Charles quipped that "the marigold observes the sun more than my subjects have done."²⁴

History of the Doctrine of Signatures

Pliny the Elder (23–79 CE) According to some authorities, Pliny the Elder's *Natural History* contains one of the earliest references to DOS.²⁵ However, Pliny is ambiguous in his support of DOS. Furthermore, it is unclear whether he is advocating signatures or simply restating the opinions of others. It is likely that he would not have ascribed to any such theory because of his Stoic beliefs, yet allusions to signatures do appear in his writings. For example, Pliny writes, "A hot decoction of rape [*Brassica napus* or *B. rapa*, Brassicaceae*] is employed for the cure of cold gout."²⁶ However, this citation follows Galen's *contraria contrariis curantur* (opposites are cured by their opposites) philosophy more than it reflects a signature. Bellavite et al cited Pliny's claim that the saliva of a rabid dog affords protection against rabies as evidence of his support of DOS.²⁷ However, Pliny mentions many other cures for rabies that do not invoke DOS.

Pliny also offers reasons other than DOS to explain the use of plants. For example, he wrote, "The adiantum is of singular efficacy in expelling and breaking calculi of the bladder, the dark kind in particular; and it is for this reason, in my opinion, rather than because it grows upon stones, that it has received from the people of our country its name of saxifragum."²⁶

The name *saxifragum*, and the genus *Saxifraga* (family: Saxifragaceae), are derived from the Latin roots *saxum* (rock) and *frangere* (to break up).[†] A plant growing in the cracks of a rock, whose roots were splitting or widening the rock, was thought to have "stone-breaking" qualities, and therefore good for bladder and kidney stones.²⁶

Pedanius Dioscorides (circa 40–90 CE) Dioscorides, a Greek physician and pharmacologist, traveled widely during his tenure as a surgeon with Roman armies. He is best known for his extensive *De Materia Medica*, which endured as the standard pharmacology text for about sixteen hundred years. Dioscorides is seldom mentioned in discussions of the DOS, most likely because he did not accept it as a theoretical basis for medicinal plant selection. Nevertheless, when reporting conventional usages, occasionally he included evocations of DOS.

The Italian scholar Giambattista Della Porta wrote, "Dioscorides says, that the drugs which grow in steep places, cold and dry, and open to the wind, are most forcible, but they that grow in dark, and waterish, and calm places, are less operative."²⁸ While this statement could loosely be interpreted to represent DOS, it is

* Brassica napus is an allotetraploid derived from *B. rapa* and *B. oleracea*; Pliny's rape could be either.

⁺ The Latin *saxifragum* was applied to a number of plants (among which are *Pimpinella saxifrage*, Apiaceae; *Adiantum capillus-veneris*, Adiantaceae; *Lithospermum officinale*, Boraginaceae; and *Stachys officinalis*, Lamiaceae). Source: Jacques André, *Les noms de plantes dans la Rome antique* (Paris: Société d'Édition 'Les belles lettres', 1985, p. 228).

[‡] Another example of Dioscorides possibly alluding to DOS concerns the orchid. Dioscorides wrote the following in De Materia Medica (Beck translation 2005, p. 237): "It has a bulbous root that is somewhat long, has two parts, and it is narrow like an-olive. One part is high up, the other lower down, one is full the other soft and shriveled. The root is eaten boiled like a bulb. About this plant, too, it is said that men who eat the larger root sire males, and that women eating the smaller give birth to females. And they say that women in Thessaly drink its soft growth with goat's milk to arouse sexual desires, and the dry one to check and abate them, and that the activity of the one is cancelled [sic] by the activity of that which is drunk afterwards." It is very difficult to find indications of magic and DOS in Dioscorides but this is clear. The Greek word orchis also means "testicles." Note, however, Dioscorides distances himself from the claims of its action by writing "it is said..." and "And they say...." He did this so that he did not have to stand by the claim.

more likely a reflection of Dioscorides' concern for variation in the quality of herbal medicines. Della Porta cites another quote from *De Materia Medica* that could be interpreted to support DOS: "Dioscorides writes, that the *Herb Scorpius* resembles the tail of the *Scorpion*, and is used against his biting."²⁹ However, the use of a conjunction between the signature and the plant's use, rather than a conjunctive adverb is significant. The phrase "and is used against his biting." Is quite different from "and therefore is used against his biting." The implicit inclusion of the conjunctive adverb "therefore" creates the logical fallacy of *post hoc ergo propter hoc* ("after this, therefore because of this"), which is common in interpretations of signatures. Dioscorides' description of *balananon elaion* (oak galls, probably from *Quercus lusitanica* or *Q. infectoria*, Fagaceae) to "stop abnormal growths of the flesh,"²⁹ is also interpreted by some to support DOS.[‡]

Illustration below from Flora von Deutschland Österreich und der Schweiz (1885) - Flora of Germany, Austria, and Switzerland (1885) ©2008 Kurt Stueber. www.biolib.de



Juglans regia

William Cole claimed that the various components of the walnut are representative of the human brain, indicating walnut's use in treating head wounds and cerebral ailments.

Table 1. Examples of the Doctrine of Signatures

Species	Common Name	Family	Signature
Aconitum napellus	aconite	Ranunculaceae	eve-like fruit
Alkanna tinctoria	orchanet	Boraginaceae	viper-shaped seeds
Aristolochia clematitis	birthwort	Aristolochiaceae	perianth tube – vagina shaped
Aristolochia serpentaria	snakewort	Aristolochiaceae	leaf shape – similar to viper's head
Beta vulgaris	beets	Amaranthaceae	red color of root
Bryonia dioica	byrony	Cucurbitaceae	swollen roots
Calendula officinalis	marigold	Asteraceae	phototropic flowers
Cardamine spp. = Dentaria spp.	toothwort	Brassicaceae	petals resemble teeth; root like decayed teeth
Ceterach officinarum	spleenwort	Aspleniaceae	spleen-shaped leaflets
Chelidonium majus	celandine	Papaveraceae	yellow latex
Columnea ericae	puca panga	Gesneriaceae	red-tipped leaf
Columnea tessmannii	puca panga	Gesneriaceae	red-tipped leaves
Convallaria majalis	lily of the valley	Ruscaceae	pendant flowers
Cucumis sativus	cucumber	Cucurbitaceae	phallic-shaped fruit
Cynoglossum virginianum	wild comfrey	Boraginaceae	fruits cling to skin and fur
Daucus carota	carrot	Apiaceae	phallic-shaped root
Echium vulgare	viper's bugloss	Boraginaceae	viper-shaped seeds
Eupatorium perfoliatum	boneset	Asteraceae	perfoliolate leaves
Euphrasia officinalis	eyebright	Orobanchaceae	striped petals
Fittonia albivenis	akapmas	Acanthaceae	liver-shaped leaves
Heliotropium spp.	heliotrope	Boraginaceae	phototropic flowers
Hepatica nobilis var. acuta	liverleaf	Ranunculaceae	liver-shaped leaves
Hypericum perforatum	St. John's wort	Clusiaceae	leaves - mixed w/olive oil turns red; pellucid
Iris spp.	iris	Iridaceae	blue-purple tepals
Juglans regia	English walnut	Juglandaceae	brain-like cotyledons
Mandragora officinarum	mandrake	Solanaceae	human-shaped roots
Momordica charantia	sorocí	Cucurbitaceae	red aril
Orchis spp.	orchid	Orchidaceae	testicle-shaped roots
Panax quinquefolius	American ginseng	Araliaceae	human-shaped rhizome
Panax spp.	ginseng	Araliaceae	human-shaped rhizomes
Pinus spp.	pine	Pinaceae	teeth like woody scales
Populus tremuloides	quaking aspen	Salicaceae	flattened petiole (shakes in the wind)
Pulmonaria officinalis	lungwort	Boraginaceae	spotted leaves
Quercus infectoria	Aleppo oak	Fagaceae	stem galls
Quercus lusitanica	Lusitanian oak	Fagaceae	stem galls
Rauvolfia serpentina	snakeroot	Apocynaceae	roots coiled, snake-like
Rosa spp.	rose	Rosaceae	red petals
Salix spp.	willow	Salicaceae	supple branches
Sanguinaria canadensis	bloodroot	Papaveraceae	red-orange latex - rhizome
Saxifraga spp.	saxifrage	Saxifragaceae	plant breaks rocks as it grows
Viola spp.	violets	Violaceae	blue petals

Sources: References 10, 13, 14, 15, 17, 18, 20, 21, 22, 23, 24, 29, 43, 83

Lungwort Pulmonaria officinalis Photo ©2008 Steven Foster

Medical Use

ocular problem snake bite parturifacient snake bite dysmenorrhea edema (dropsy), swollen feet submission to sovereignty tooth ailments enlarged spleen liver ailments menstrual bleeding, snake bite snake bite & menstrual bleeding apoplexy sexual potency memory sexual potency snake bite fuse broken bones eye problems liver pain submission to sovereignty liver problems deep wounds; skin ailments bruises cerebral ailments panacea blood tonic aphrodisiac panacea panacea toothache palsy pulmonary complaints abnormal growths abnormal growths snake bite inflammation, drunkenness rheumatic joints blood kidney stones shyness

Galen (131-201 CE) Claudius Galenus, or Galen, ascribed to Hippocrates the theory that health required the maintenance of equilibrium among the various humors, e.g., blood, yellow bile, black bile, and phlegm. Some scholars claim that he was one of the earliest proponents of DOS, but they would be incorrect. One can see the theory in operation in the earliest pharmaceutical works.

Maycock noted, "Galen was resolute in his confidence of an underlying design throughout nature to be demonstrable in accord with a doctrine of signatures."³⁰ However, evidence for Galen's adherence to DOS is lacking. Paracelsus, the greatest DOS proponent, rejected Galen and other classical authorities by publicly burning their texts. Galen is perhaps best known for the concept *contraria contrariis curantur* (the opposite is cured with the opposite), the foundation of so-called allopathic medicine. Accordingly, heat would be applied for diseases rooted in coldness and vice versa.³¹

Paracelsus (1493-1541) Paracelsus, or Philippus Theophrastus Aureolus Bombastus von Hohenheim, served as the municipal physician of Basel and as a lecturer at the city's university. He opposed Galenic medicine, promoting an experimental approach instead.³² Paracelsus has been called the "father of chemistry," "founder of medicinal chemistry," and "father of toxicology." The latter title derives from his proclamation that, "Solely the dose determines that a thing is not a poison."33 The statement reveals far more than the founding principle of toxicology. It reveals Paracelsus' faith in the efficacy of inorganic substances in medicine, despite his critics' assertions that they were too toxic to be used as therapeutic agents.³³ The therapeutic use of purified chemicals (like arsenic, lead, mercury, and any single inorganic compound), specifically inorganic elements, was a 16th century innovation of Paracelsus.34

Paracelsus and his followers espoused the principle *similia similibus curantur* (like cures like).³⁵ In Paracelsian medicine, treatment was directed against the external agent of disease, rather than toward the restoration of a balance in the humors.³⁶ Paracelsus believed that plants, animals, and minerals were put on Earth by the Creator for human use. God provided signs within plants to indicate their uses.

"Nature marks each growth which comes from her according to its curative benefit ... and there is no thing in nature, created or born, which does not strive to reveal its inner form outwardly; for the inner life continually works toward revelation."³⁷

Nicolas Bautista Monardes (AD 1493-1588) Monardes, the most famous Spanish physician of his time, practiced in Seville. He published a collection of his writings in 1574, which included a description of the newly introduced South American plant, coca (*Erythroxylum coca*, Erythroxylaceae) and its uses.³⁸ Monardes was among the first Europeans to promote medicinal plants from the New World.³⁹ Though he never saw the New World, as a proponent of DOS, Monardes accepted Native American botanical remedies, though he sometimes modified them.⁴⁰

Giambattista Della Porta (1538-1615) A disciple of Paracelsus, Della Porta interpreted the virtues of plants based on their physical characteristics. His writings in *Magia Naturalis* and *Phytognomonica* were considered the definitive DOS exposition of the 16th and 17th centuries⁴¹ and he developed the theory in great detail.⁴² Della Porta's support of DOS is unequivocal. For instance, he wrote "... Bugloss and Orchanet bear seeds like a Viper's head, and these are good to heal their venomous bitings. Likewise Stone-crop and Saxifrage are good to break the stone in a man's bladder."⁴³

Oswaldus Crollius (circa 1560-1609) Another follower of Paracelsus, Oswald Croll (or Oswaldus Crollius) opposed the Galenic theory of humors and sought external causes of disease.³⁶ Croll's support of DOS is evident in his *De Signaturis Internis Rerum (Treatise of Signatures of Internal Things*), first published in 1669. According to Croll, the woody scales of pine cone resemble the fore-teeth; therefore pine leaves boiled in vinegar were used for the relief of toothache.⁴⁴ Croll is adamant in his espousal of DOS as the key to elucidating the value of medicinal plants.

"In like manner, herbs magically by their signature bespeak the physician's thorough introspection, and to him by similitude manifest their interiors, concealed in the occult silence of Nature."⁴⁵

Jakob Böhme (1575-1624) Jakob Böhme, a German religious mystic, was a master cobbler by profession. He experienced a mystical vision in 1600, which revealed to him that the relationship between God and man was signaled in

Paracelsus believed that plants, animals, and minerals were put on Earth by the Creator for human use. God provided signs within plants to indicate their uses. all creation.⁴⁶ In 1621, he published *Signatura Rerum (The Signature of all Things*). Here, Böhme reiterated the Paracelsian theory that the inner qualities and properties of all things are displayed in their outer forms. He advised all men to study nature with this in mind, assuring them that, "the greatest understanding lies in the signatures, wherein man may not only learn to know himself, but also the essence of all essences."⁴⁷ Though his interests were primarily mystical and spiritual, his concept of signatures extended to medicinal plants.

"And there is nothing that is created or born in nature, but it also manifests its internal form externally, for the internal continually labours or works itself forth to manifestation ... which we see and know in the stars and elements, likewise in the living creatures, and also in the trees and herbs."⁴⁸

Nicholas Culpeper (1616-1654) Culpeper, the English physician, herbalist, and astrologer, believed that only astrologers were fit to study medicine. He described the College of Physicians in London as, "A company of proud, insulting, domineering doctors, whose wits were born about 500 years before themselves."⁴⁹





The liver-shaped leaves of liverleaf were said to indicate the plant's liver-healing attributes, according to Doctrine of Signature proponents.

Culpeper's herbal, first published as *The English Physitian* (1652), has been continuously published for more than 350 years. His works targeted the popular audience and included explicit references to DOS and to astrological theories as well.⁵⁰ Culpeper valued signatures in plants, as clues to their medicinal value. He wrote "... by the icon or image of every herb, man first found out their virtues. Modern writers laugh at them for it, but I wonder in my heart how the virtues of herbs first came to be known, if not by their signatures. The moderns have them from the writings of the ancients—the ancients had no writings to have them from."⁴⁹

William Cole (1626-1662) The 17th century botanist William Cole (sometimes misspelled as Coles) is known for his two books, *The Art of Simpling* (1656) and *Adam in Eden* (1657). He was the major English proponent of DOS and, like his contemporary Culpeper, wrote for the populace. Cole, however, criticized Culpeper, describing him as "ignorant in the forme of Simples."⁵¹ He was also critical of Culpeper's incorporation of astrology into herbal practices.⁵² Cole believed that some plants were given signatures "in order to set man on the right track," but others were left blank to encourage humans to discover them.⁴²

For Cole, glands in the leaves of St. John's wort (*Hypericum perforatum*, Clusiaceae), which resembled skin, signified the use of the plant to treat skin problems.⁵³ He argued that walnuts were efficacious in curing head ailments because, "They have the perfect signatures of the head." Cole's *Art of Simpling* is still in press and quoted widely in many herbals. Here, DOS is emphatically promoted.

"Though Sin and Sathan have plunged mankinde into an Ocean of Infirmaties, yet the mercy of God, which is over all His workes, maketh Grasse to grow upon the Mountaines, and Herbes for the use of men, and hath not only stamped upon them a distinct forme, but also given them particular Signatures, whereby a man may read, even in legible characters, the use of them."²¹

Recent History The pansemiotic view of the environment, including DOS, reached its apex during the Renaissance.⁵⁴ Paracelsian physicians of the 16th century showed a renewed interest in DOS, arguing that their predecessors had misunderstood the theory. They expanded the concept of signatures to include chemical clues.⁵⁵ Panese argued that DOS held significant influence in science and medicine from the 16th century onwards.⁵⁶ In contrast, Maclean claimed, "… few non-Paracelsian doctors find anything to recommend in the doctrine of plant signatures."⁵⁷

The modern literature continues to allude to DOS. Five publications in the Index to *Economic Botany* (1947-1996) refer to the concept.⁵⁸ More recently Dafni and Lev described DOS in modern Israeli folk medicine.⁵⁹ Publications in other journals also refer to DOS. Davis and Yost discussed the Ecuadorian Waorani's sympathetic magic to guide their healing practices.⁶⁰ They noted that the use of plants with strong odors to counter symptoms is reminiscent of DOS. Schultes and Hoffmann suggested that the European fear of mandrake during the Middle Ages was due to DOS.⁶¹

Critics of the Doctrine of Signatures

Rembert Dodoens (1517-1585) In 1583, the Flemish physician and herbalist Rembert Dodoens declared that "[DOS] has received the authority of no one ancient writer who is held in any esteem: moreover it is so changeable and uncertain that, as far as a science of learning is concerned, it seems absolutely unworthy of acceptance."⁴²

John Ray (1627-circa 1705) Ray, an English philosopher, theologian, and naturalist ranks among the most influential Brit-

ish natural historians of his era.⁶² According to Thiselton-Dyer, Ray, in his treatise *The Wisdom of God Manifest in the Works of Creation* (1691), was among the first to express disbelief in DOS, though he was probably not entirely free of its influence.⁴⁴ Ray described his skepticism regarding DOS in his 1660 *Cambridge Catalogue.*⁶³

"As for the signatures of plants, or the notes impressed upon them as notices of their virtues, some lay great stress upon them, accounting them strong arguments to prove that some understanding principle is the highest original of the work of Nature, as indeed they were could it be certainly made to appear that there were such marks designedly set upon them, because all that I find mentioned by authors seem to be rather fancied by men than designed by Nature to signify, or point out, any such virtues, or qualities, as they would make us believe."⁶⁴

Samuel Hahnemann (1755-1843) In 1810, Hahnemann, a German physician, published *Organon of Rational Therapeutics*, which outlined the principles of homeopathy. Hahnemann was justifiably dissatisfied with the heroic medical practices (bleeding, purging, vomiting, etc.) and the materia medica of his times: "From the earliest beginnings until now, the *materia medica* has consisted only of false suppositions and fancies, which is as good as no *materia medica* at all."⁶⁵ In contrast to the *contraria contrariis curantur* principle of Hippocrates and others, he advocated the principle of *similia similibus curantur* or like cures like.⁶⁶ Fishbein, however, claimed that Hahnemann's thesis was a revival of the Paracelsian Doctrine of Signatures, except that Paracelsus focused on causes of disease rather than their symptoms.³⁵

Richardson-Boedler concluded that Hahnemann did not utilize DOS.³⁷ In fact, Hahnemann clearly rejected it: "The...virtues of medicines cannot be apprehended by... smell, taste, or appearance...or from chemical analysis, or by treating one or more of them in a mixture..."⁶⁵ His contempt for DOS is without question.

"I shall spare the ordinary medical school the humiliation of reminding it of the folly of those ancient physicians who, determining the medicinal powers of crude drugs from their signatures, that is, from their colour and form, gave the testicleshape orchis-root in order to restore manly vigour, the phallus impudicus to restore weak erections, and considered *Hypericum perforatum*, whose yellow flowers on being crushed yield a red juice (St. John's blood), useful in haemorrhages and wounds, etc.; but I shall refrain from taunting the physicians of the present day with this absurdity, although traces of it are to be met with the most modern treatises on Materia Medica." ⁶⁷

T. F. Thiselton-Dyer (1848-1928) Thomas Firminger Thiselton-Dyer's *Folk-Lore of Plants* (1889) examined DOS in the 16th and 17th centuries. This is perhaps the most comprehensive treatment of the theory to date. The folklorist found reference to DOS in most medical works, noting that it was "treated with a seriousness characteristic of the backward state of medical science even at a period so comparatively recent." According to Thiselton-Dyer, DOS "led to serious errors in practice."³⁴

James Mooney (1861-1921) In reference to the Cherokee, Mooney first denigrated traditional medicinal knowledge: "... their theory and diagnosis are entirely wrong, and consequently we can hardly expect their therapeutic system to be correct."⁶⁸ Though admitting that many plants in their pharmacopoeia, "possess real curative properties" he added, "Thus at the present day the doctor puts into the decoction intended as a vermifuge some of the red fleshy stalks of the common purslane or chickweed (*Portulaca oleracea*, Portulacaceae), because these stalks somewhat resemble worms and consequently must have some occult influence over worms."

Recent History Read suggested that the influence of DOS diminished beginning in the 1700s,¹⁰ but Arber argued that it persisted into the 19th century. She cited Thomas Green's *Universal Herbal* published in 1816: "Nature has, in this country, as well as in all others, provided, in the herbs of its own growth, the remedies for the several diseases to which it is most subject."⁴²

Modern scholars are near universal in their condemnation of DOS. The theory is called absurd, fanciful, far-fetched, discredited, premodern, prescientific, primitive, unreliable, and unscientific. Simpson and Ogorzaly averred that the idea "seems absurd now but received great acclaim when it was proposed. Luckily, it was soon displaced by less subjective and more secular methods of determining a plant's medical efficacy."⁶⁹ Tyler ranked

Illustration from Flora von Deutschland Österreich und der Schweiz (1885) - Flora of Germany, Austria, and Switzerland (1885) ©2008 Kurt Stueber. www.biolib.de





Populus tremuloides

Flattened petioles (leaf stalks) of quaking aspen appear to shake in the wind, reflecting the plant's usefulness for treating palsy, according to Doctrine of Signatures proponents.

Photo ©2008 Steven Foster

Toothwort Cardamine dentaria

The petals of toothwort have been said to resemble human teeth while the root of the plant has been compared to decayed teeth—hence its association with treating tooth ailments under the Doctrine of Signatures theory.

Illustration at right from Flora von Deutschland Österreich und der Schweiz (1885) -Flora of Germany, Austria, and Switzerland (1885) ©2008 Kurt Stueber. www.biolib.de



it among his False Tenets of Paraherbalism.⁷⁰ Reed claimed that the theory has been completely debunked.⁷¹ Barfod and Kvist concluded, plants "used according to the Doctrine of Signatures" are less promising as pharmacological leads than other medicinal plants.⁷²

A New Perspective on the Doctrine of Signatures

The late Harvard University biologist and popular author Stephen Jay Gould provided the most objective assessment of DOS, noting that the theory represents the key difference between modern science and an older view of nature.

"I question our usual dismissal of this older approach as absurd, mystical, or even prescientific (in any more than a purely chronological sense). Yes, anointing the wound as well as the weapon can only be labeled ridiculous mumbo-jumbo in light of later scientific knowledge. But how can we blame our forebearers for not knowing what later generations would discover? We might as well despise ourselves because our grandchildren will, no doubt, understand the world in a different way."³⁶

Is DOS nothing more than "ridiculous mumbo-jumbo"? I recently proposed that DOS be reevaluated based on 4 criteria: (1) Its role in the discovery of medicinal plants, (2) *Post hoc* attribution of signatures, (3) The nature of signatures, and (4) Its role as a mnemonic. There is no evidence that DOS was used to discover the utility of medicinal plants. Researchers were not present when plants were first incorporated into pharmacopeias. Moreover, many plants with apparent signatures are not utilized while others lacking a correlated sign are employed.⁷³

The Hermetic literature of late antiquity and medieval periods was widely read in Greek, Syriac, Arabic, and Latin and tended to emphasize that "God has endowed each herb, each stone, each star, and each sign, with a 'secret' which, when it becomes known to man, will be of utility." The authors of this literature generally recorded secondhand accounts of healing; they were not practitioners or even discovers of medicinal plant knowledge.

Signatures are *post hoc* attributions rather than *a priori* clues. This contradicts the prevailing wisdom on DOS. Coulter, for example, wrote, "The doctrine of signatures and the microcosmmacrocosm correspondences seem to provide the physician with *a priori* knowledge of the remedies."⁷⁴ For example, Read wrote, "... in some cases the signatures of drugs were observed after their real use had been discovered."¹⁰

No evidence supports the thesis that signatures were used to discover medicinal attributes of plants. Nonetheless, recent research supports the therapeutic value of many signature-bearing species. For example, Mooney's dismissal of purslane (Portulaca oleracea, Portulacaceae) was premature. Recent studies have shown that the plant is effective for controlling intestinal parasite loads and that it has gastroprotective action,75,76 which validates its use in folk medicine for gastrointestinal diseases. Instead of a clue that led to its discovery, a more parsimonious interpretation would be that the resemblance to worms aided in transmission of knowledge about the plant's use. Similarly, bitter melon (Momordica charantia, Cucurbitaceae) is consumed throughout the Caribbean as a blood tonic.⁷⁷ The plant's seeds have a bright red aril and healers associate this signature with blood. Extracts from the plant normalize blood glucose levels, reduce triglyceride and LDL levels, and increase HDL levels.78 Even walnuts (Juglans regia, Juglandaceae), with their often-ridiculed cotyledon signature of a human brain, may be effective in treating cerebral ailments. Melatonin occurs in walnuts. When they are consumed by rats, blood melatonin concentrations increase.⁷⁹ Melatonin is effective in relieving a variety of brain-related problems in laboratory animals including

inflammation associated with cerebral ischemia.^{80, 81}

The notion of signatures should be expanded to include nonmorphological signatures. Strong odors in plants are correlated with the presence of volatile compounds, most of which are biologically active. Debus was among the first to discuss this expanded concept of signatures, writing, "The Paracelsian chemical physicians ... disagreed intensely with those who sought to understand and to identify them only through their external shape or appearance. The chemist's own laboratory procedures seemed to offer the proper key to nature's hidden secrets."⁵⁵ Davis and Yost's suggestion that plants with a strong odor might repel symptoms echoed a similar view.⁶⁰

Most importantly, DOS served as a mnemonic, an idea first alluded to by Buchanan in 1938.⁵⁰ The Doctrine of Signatures is primarily a way of remembering and transmitting plant knowledge, not a means of discovery. *Post hoc* attribution of signatures served as a memory aid that was particularly useful in preliterate societies. A 1996 study concluded that plants "used according to the Doctrine of Signatures" are less promising pharmacological leads than other medicinal plants. There is no basis for this assertion as many signature-bearing plants have proven to be efficacious in treating conditions suggested by their signatures.⁸²

Conclusion

The Doctrine of Signatures is ubiquitous in the literature on medicinal plants. According to most proponents of the theory, the Creator imbued healing plants with a sign that revealed their therapeutic value. Early classical scholars, including Pliny and Dioscorides, allude to DOS, but the theory was best developed by Paracelsus and his students in the Middle Ages. The German religious mystic Jakob Böhme along with the English herbalists Nicholas Culpeper and William Cole were among the strongest DOS proponents. Beginning in the mid-1500s, scholars began to criticize the notion of signatures. Flemish physician and herbalist Rembert Dodoens was first to challenge DOS's supremacy. The English naturalist John Ray also was critical of the theory. Modern scholars are near universal in discounting the theory. However, a careful evaluation of DOS suggests that its value as a mnemonic, rather than an *a priori* clue to value, should not be dismissed. HG

Bradley C. Bennett, PhD, is an associate professor (within the Department of Biological Sciences) and director of the Center for Ethnobiology and Natural Products at Florida International University. His research focuses on Neotropical ethnobotany. He has published one book, 55 papers, 7 book chapters, and 40 book reviews. He was the 2004–2005 president of the Society for Economic Botany, and he currently serves as an associate editor of Economic Botany and a member of the ABC Advisory Board. He also serves frequently on National Institute of Health (NIH) and National Center for Complementary and Alternative Medicine (NCCAM) review panels. Dr. Bennett's Ethnobotany of the Shuar of Eastern Ecuador (New York Botanical Garden Press, 2002) won the 2006 Klinger Book Award.

Contact information: Dept. Biological Sciences, Florida International University, Miami, FL 33199. Phone: 305-348-3586 email: bennett@fiu.edu.

References

- 1. Stannard J. A fifteenth century botanical glossary. *Isis.* 1964;55:353–367.
- Stannard J. The theoretical basis of medieval herbalism. *Medical Heri-tage*; 1985;1:186–198.
- 3. True RH. Folk Materia Medica. J Amer Folklore. 1901;14:105–114.
- Levetin E, McMahon K. *Plants and Society*, 2nd ed. Boston: MCB/ McGraw-Hill; 1901.

- Reed D. Wild Comfrey (*Cynoglossum virginianum*) [2bnTheWild.com Web site]. Wildflowers of the Southeastern United States. Available at: http://2bnthewild.com/index2.shtml. Accessed March 27, 2006.
- 6. Lewis WH, Elvin-Lewis MPF. *Medical Botany: Plant's Affecting Man's Health*. New York: John Wiley and Sons; 1977.
- 7. Crollius O. A Treatise of Oswaldus Crollius of Signatures of Internal Things; or, a True and Lively Anatomy of the Greater and Lesser World. London: John Starkey and Thomas Passenger; 1669. Available at: http://www. levity.com/alchemy/croll_signatures.html. Accessed March 15, 2006.
- Balée W. Footprints in the Forest. Ka'apor Ethnobotany—the Historical Ecology of Plant Utilization by an Amazonian People. New York: Colombia University Press; 1994.
- Powell JW. Introduction. In: F.H. Cushing, *Zuñi Folk Tales*; 1901. Available at: http://www.sacred-texts.com/nam/zuni/zft/index.htm. Accessed March 20, 2006.
- 10. Read BE. Some old Chinese herbs used in obstetrical practice. J Obs Gyn. 1927;34:498–508.
- 11. Adams F. Genuine works of Hippocrates. London: Sydenham; 1749.
- 12. Garrison F. An introduction to the history of medicine, 3rd ed. Philadelphia: WB Saunders; 1921.
- 13. Milton J. *Paradise Lost* [edited with an introduction and notes by S. Orgel and J. Goldberg]. New York: Oxford University Press; 2004 (first published 1667).
- 14. Tyler VE. The Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies, 3rd ed. New York: Haworth Press; 1993.
- 15. Rowlings JK. *Harry Potter and the Chamber of Secrets*. New York: Arthur A. Levine Books; 1999.
- Mabberley DJ. The Plant Book: A Portable Dictionary of the Higher Plants. New York: Cambridge University Press; 1987.
- Grieve M. A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folk-Lore of Herbs, Grasses, Fungi, Shrubs & Trees with their Modern Scientific Uses. New York: Dover Publications; 1971 (first published 1931). Available at: http://botanical.com/ botanical/mgmh/mgmh.html. Accessed October 10, 2006.
- Carlson AW. Ginseng: America's botanical drug connection to the Orient. *Econ Bot.* 1986;40:232–249.
- Gordon J. Pageant of the Rose. New York, NY: Studio Publications in association Thomas Y. Crowell Co;1953. Cited by: Touw M. Roses in the Middle Ages. Econ Bot. 1982;36(1):71–83.
- 20. Culpeper N. A Physical Directory or a Translation of the London Dispensatory, 3rd ed. London: Peter Cole; 1651.
- Cole W. The Art of Simpling: An Introduction to the Knowledge and Gathering of Plants. Whitefish, MT: Kessinger Publishing; 2004 (first published 1656).
- 22. Wells C. Poppy juice and willow bark: Advances in their use for the 21st Century; 2006. Available at: http://www.thepainweb.com/doclib/ topics/000009.htm. Accessed March 23, 2006.
- 23. Shah J. Erectile dysfunction through the ages. *BJU International.* 2002;90: 433-441.
- Saine A. Drawing a line in the sand: Homeopathy or not homeopathy? J Amer Inst Homeo. 2002;95:69–88.
- Stannard J. Medicinal Plants and Folk Remedies. In: Pliny Historia Naturalis. *History and Philosophy of the Life Sciences*. 1982;4:3–23.
- 26. Pliny. Jones WHS, trans. *Natural History*. Vol 6. Loeb Classical Library ed. Cambridge: Harvard University Press;1938–1963.
- 27. Bellavite P, Conforti A, Piasere V, Ortolani R. Immunology and homeopathy. Historical background. *Evidence-based Comp Alt Med.* 2005;2:441–452.
- 28. Della Porta G. *The First Book of Natural Magick: Wherein are searched out the causes of things which produce wonderful effects*; 1658 (first published in 1558). Available at: http://homepages.tscnet.com/omard1/jportac1.html#Chap11Bk1. Accessed March 14, 2006.
- Dioscorides P. De Materia Medica, Osbaldeston TA, trans. Johannesburg: Ibidis Press; 2000 (first published 65 CE). [See also: Dioscorides P. De Materia Medica, translated by LY Beck. Hildesheim: Olms-Weidmann; 2005.]
- Maycock PP, Jr. Introduction to the Second Edition. In: S. Buchanan. *The Doctrine of Signatures: A Defense of Theory in Medicine*, 2nd ed. Urbana, IL: University of Illinois Press; 1991.
- 31. Cooper EL. Review of 12th International Congress of Oriental Medicine (2003). Plenary Lecture—Chieh-Fu Chen, Traditional, Modern and

Alternative Medicines. Evidence-Based Comp Alt Med. 2004;1:103-106.

- 32. Guggenheim KY. Paracelsus and the science of nutrition in the renaissance. On occasion of the 500th anniversary of his birth. *J Nutr.* 1993;123:1189–1194.
- 33. Borzelleca J. Paracelsus: Herald of Modern Toxicology. *Toxicol Sci.* 2000;53:2–4.
- 34. Etkin NL, Johns T. Pharmafoods and nutraceuticals: Paradigm shifts in biotherapeutics. Prendergast HDV, Etkin NL, Harris DR, and Houghton PJ, eds. *Plants for Food and Medicine*. Richmond, Surrey, UK: Royal Botanic Gardens Kew; 1998.
- 35. Fishbein M. *The Rise and Fall of Homeopathy*; 1932. Available at: http:// www.homeowatch.org/history/fishbein.html. Accessed October 10, 2006.
- 36. Gould SJ. The Jew and the Jew Stone. *Natural History.* 2000;109 (June):26–39.
- 37. Richardson-Boedler C. The doctrine of signatures: A historical, philosophical, scientific view (I). Br Homeo J. 1999;88:172–177.
- Calatayud J, González A. History of the development and evolution of local anesthesia since the coca leaf. *Anesthesiol.* 2003;98:1503–1508.
- Roberts RS. Book Review, Nicolás Bautista Monardes. Su vida y su obra [circa 1493–1588]. Yale University Publications No. 41. *Med Hist.* 1963;7:196–197. Available at: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1034819. Accessed March 20, 2006.
- Reveal JL, Pringle JS. Chapter 7. Taxonomic botany and floristics. Editorial Committee, eds. *Flora of North America North of Mexico, Vol. 1 Introduction.* New York: Oxford University Press; 1993.
- 41. Clubb LG. Giambattista Della Porta, Dramatist. Princeton, NJ: Princeton University Press; 1965.
- Arber A. Herbals: Their Origin and Evolution, A Chapter in the History of Botany 1470-1670, 3rd ed. New York: Cambridge University Press; 1988 (first published 1912).
- 43. Della Porta G. The First Book of Natural Magick: Wherein are searched out the causes of things which produce wonderful effects; 1658 (first published 1558). Available at: http://homepages.tscnet.com/omard1/ jportac1.html#Chap11Bk1. Accessed March 14, 2006.
- 44. Croll O. De Signaturis Internis Rerum (Treatise of Signatures of Internal Things); Frankfort, 1609. Cited by: Thiselton-Dyer TF. The Folk-Lore of Plants; 1889. Available at http://www.gutenberg.org/files/10118/10118-8.txt. Accessed March 24, 2006.
- 45. Crollius O. A Treatise of Oswaldus Crollius of Signatures of Internal Things; or, a True and Lively Anatomy of the Greater and Lesser World. London: John Starkey and Thomas Passenger; 1669. Available at: http:// www.levity.com/alchemy/croll_signatures.html. Accessed March 15, 2006.
- 46. Weeks A. *Boehme: An Intellectual Biography of the Seventeenth-Century Philosopher and Mystic.* Albany, NY: State University of New York Press; 1991.
- Great Theosophists: Jacob Boehme. *Theosophy.* 1938;26:386–392. Available at: http://www.wisdomworld.org/setting/boehme.html. Accessed October 12, 2006.
- Böhme J. The Signature of All Things [Signatura Rerum, Law W, trans]. 1621. Available at: http://pegasus.cc.ucf.edu/~janzb/boehme/sigrer1.htm. Accessed March 24, 2006.
- 49. Culpeper N. *The English Physitian: Or an astrologo-physical discourse of the vulgar herbs of this nation.* London: Peter Cole; 1652. Available at: http://www.med.yale.edu/library/historical/culpeper/culpeper.htm. Accessed March 10, 2006.
- 50. Buchanan S. *The Doctrine of Signatures: A defense of theory in medicine*, 2nd ed. Urbana, IL: University of Illinois Press; 1991 (first published in 1938).
- Cole W. In: Tierra M. *The Herbal Tradition*; 2005. Available at: http:// www.planetherbs.com/showcase/docs/herbhist.html. Accessed October 12, 2006.
- 52. Early Modern 1450-1600—The Renaissance and Medicine. Galeria— Medicine; 2006. Available at: http://www.interzone.com/~cheung/SUM. dir/med45.html. Accessed March 25, 2006.
- 53. Vickery AR. Traditional uses and folklore of *Hypericum* in the British Isles. *Econ Bot.* 1981;35:289–295.
- 54. Nöth W. Ecosemiotics. Sign Systems Studies. 1998;26:332-343.
- 55. Debus AG. A further note on paligenesis: The account of Ebenezer Sibly in the Illustration of Astrology (1792). *Isis.* 1973;64:226–230.
- 56. Panese F. The doctrine of signatures and graphical technologies at the dawn of Modernity [in French]. *Gesnerus.* 2003;60:6–24.

- 57. Maclean I. Foucault's Renaissance episteme reassessed: An Aristotelian counterblast. *J HistIdeas*. 1998;59:149–166.
- Kaplan L, Taylor M, Thieret JW, eds. Bennett BC, Heatley J, Kaplan E, Frank S, Frayman S, contributors. *Econ Bot: Index to Volumes 1–50 (1947–1996)*. New York: The New York Botanical Garden Press; 2001.
- 59. Dafni A, Lev E. The Doctrine of Signatures in present-day Israel. *Economic Botany.* 2002;56:328–334.
- 60. Davis EW, Yost JA. The ethnomedicine of the Waorani of Amazonian Ecuador. *J Ethnopharmacol.* 1983;9:273–297.
- 61. Schultes RE, Hoffmann A. *The Botany and Chemistry of Hallucino*gens, 2nd ed. Springfield, Il: Charles C. Thomas; 1980.
- 62. Lawrence GHM. *Taxonomy of vascular plants*. New York: The MacMillan Co; 1951.
- 63. Pyle A, ed. *Dictionary of Seventeenth-Century British Philosophers*. Harrisburg, PA: Thoemmes Continuum; 2000. Available at: http:// www.thoemmes.com/dictionaries/ray.htm. Accessed March 26, 2006.
- 64. Ray J. *The Wisdom of God Manifested in the Works of Creation*, 7th ed. Printed by R Harbin for William Innys at the Prince's-Arms in St Paul's Church Yard; 1717 (first published in 1691). Available at: http://www. jri.org.uk/ray/wisdom/index.htm. Accessed April 10, 2007.
- Morrell P. British Homeopathy During Two Centuries. Master of Philosophy, Staffordshire University; 1999. Available at: http://www.homeoint.org/morrell/british/provings.htm. Accessed March 27, 2006.
- 66. Aulas J. Nienhuys JW, trans. Homeopathie: meer dan placebotherapie? *Geneesmiddelenbulletin.* 1996;30:26–32. Available at: http://www. hutch.demon.co.uk/prescrire/met.htm. Accessed March 18, 2006.
- 67. Hahnemann S. Organon of Rational Therapeutics; 1801. Cited by: Delmour F. The similia principle—its historical and scientific roots; 2001.
- 68. Mooney J. Sacred Formulas of the Cherokees. 7th Annual Report, Bureau of American Ethnology. Washington, DC: Smithsonian Institution; 1891. Available at: http://www.astralsociety.com/Files/The_ Sacred_Formulas_of_the_Cherokees.pdf. Accessed October 12, 2006.
- 69. Simpson BB, Ogorzały MC. *Economic Botany, Plants in Our World*, 3rd ed. Boston, MA: McGraw Hill; 2001.
- 70. Tyler VE. *Herbs of Choice: The Therapeutic Use of Phytomedicinals.* New York: Haworth Press; 1994.
- Reed D. Doctrine of Signatures [2bnTheWild.com Web site].
 Wildflowers of the Southeastern United States. Available at: http://

2bnthewild.com/S2.htm. Accessed March 27, 2006.

- 72. Barfod AS, Kvist LP. Comparative Ethnobotanical studies of the Amerindian groups in coastal Ecuador. *Biologiske Skrifter*. 1996;46:1–166.
- Bennett BC. Doctrine of Signatures: An explanation of medicinal plant discovery or dissemination of knowledge? *Economic Botany*. 2007;61:246–255.
- 74. Coulter HL. Divided Legacy: A History of the Schism in Medical Thought. Berkeley, CA: North Atlantic Books; 1982.
- Quinlan MB, Quinlan RJ, Nolan JM. Ethnophysiology and herbal treatments of intestinal worms in Dominica, West Indies. *J Ethnopharmacol.* 2002;80:75–83.
- 76. Karimi G, Hosseinzadeh H, Ettehad N. Evaluation of the gastric antiulcerogenic effects of *Portulaca oleracea* L. extracts in mice. *Phytother Res.* 2004;18:484–487.
- 77. Arvigo R, Balick MJ. *Rainforest Remedies: One Hundred Herbs of Belize*. Twin Lakes, WI: Lotus Press; 1993.
- 78. Chaturvedi P. Role of *Momordica charantia* in maintaining the normal levels of lipids and glucose in diabetic rats fed a high-fat and low-carbohydrate diet. *Br J Biomed Sci.* 2005;62:124–126.
- Reiter RJ, Manchester LC, Tan DX. Melatonin in walnuts: Influence on levels of melatonin and total antioxidant capacity of blood. *Nutrition*. 2005;21:920–924.
- Lee MY, Kuan YH, Chen HY, et al. Intravenous administration of melatonin reduces the intracerebral cellular inflammatory response following transient focal cerebral ischemia in rats. *Journal of Pineal Research.* 2007;42:297–309.
- 81. Larson J, Jessen R, Uz T, et al. Impaired hippocampal long-term potentiation in melatonin MT2 receptor-deficient mice. *Neuroscience Letters*. 2006;393:23–26.
- 82. Barford AS, LP Kvist. Comparative ethnobotanical studies of the Amerindian groups in coastal Ecuador. *Biologiske Skrifter*.1996;46:1–166.
- 83. Bennett BC, MA Baker, P Gómez. Ethnobotany of the Shuar of eastern Ecuador. *Advances in Econ Bot.* 2002;14:1–299.

www.herbalgram.org

Had Your Monthly Dose From ABC?

herbal Egram

Exclusive for ABC Members

HerbalEGram brings you:

- Recent research, regulatory, and market news
- ♦ Sneak previews of upcoming *HerbalGram* articles and HerbClipTM reviews
- Media Watch—direct links to recent mass media coverage on herbal medicine topics
- Original, peer-reviewed articles on developments in the herb community from ABC's independent perspective
- Updates on worldwide events and conferences
- Upcoming ABC events and appearances . . . and more

Not receiving HerbalEGram?

Please contact **membership@herbalgram.org** or **512-926-4900**.

2008

Wisdom From NEW KNOWLEDGE COMES

By Gregory A. Plotnikoff with Kenji Watanabe and Fumiko Yashiro

Kampo, Japan's unique herbal medicine tradition, is one form of Traditional East Asian or Oriental Medicine derived from ancient China. Kampo consists of 148 government-regulated, ancient, multi-herb pharmaceutical preparations taught to many medical students* and prescribed by the majority of practicing Japanese physicians. These prescriptions by traditionally conservative physicians—such as obstetricians, pediatricians, and orthopedic surgeons—include herbal formulas with such ingredients as ephedra (*Ephedra sinica*, Ephedraceae), aconite (*Aconitum napellus*, Ranunculaceae) root, and licorice (*Glycyrrhiza glabra*, Fabaceae) root.

*The study of Kampo is not compulsory.

All photos ©2008 Fumiko Yashiro unless otherwise noted.

United States, where most herbal preparations are regulated as dietary supplements (technically foods, not drugs), herbal medicines in Japan are regulated as pharmaceutical preparations. Both the industry and the government conduct extensive monitoring of agricultural and manufacturing processes as well as post-marketing surveillance to guarantee the safety of these preparations. Furthermore, access to Kampo herbal medicines is guaranteed as part of Japan's national health plan for each of its citizens. In the West, however, Kampo still remains a secret to all but a few.

Kampo, like the traditional medicines of modern China, Vietnam, and Korea, has roots that extend back to ancient China's Han Dynasty (200 BCE to 220 CE). The term Kampo itself incorporates 2 characters: \Box (*kan*) for the Han dynasty and \Box (*po*) denoting "way" or "method." Thus, Kampo means "the way of the Han Dynasty." Although Kampo has developed within Japan's borders and within Japan's culture over the past 1400 years, only recently have Kampo practitioners expressed interest in sharing Kampo's unique insights with the world. The US Food and Drug Administration (FDA) has approved 4 Kampo formulas as Investigational New Drugs (INDs) for formal clinical trials: *Saireito* (approved in 1990), *Shosaikoto* (1994), *Keishibukuryogan*

(2004), and *Daikenchuto* (2005), with the latter two having been approved under the FDA's recent, more stringent criteria. Several university-based clinical trials are now underway in the United States. Recent *HerbalGram* articles have addressed 2 specific Kampo herbal formulas, *Shosaikoto* for liver diseases and *Juzentaihoto* for cancer.^{1,2} The purpose of this article is to provide a brief introduction to the history and philosophy of Kampo as currently practiced in Japan. This will include descriptions of the herbs and formulas used, diagnostic techniques employed, differences from other forms of traditional Asian medicine, and the government safety regulations followed.



Pictured above are classical Japanese herbs in their traditional and modern styles. Pharmaceutical-grade prescription herbal medicines are provided in standardized packets that contain granules for making instant teas. Each prescription medication has a number that corresponds to one ancient multi-herb formula. Prescription formula number 40 is *choreito*, 72 is *kanbakutaisoto*, and 60 is *keishi-kashakuyakuto*.

Kampo Components and Practices

Many herbs used in Kampo are already familiar to American herbalists. Examples include spices such as cinnamon (*Cinnamo-mum cassia*, Lauraceae; and *C.* spp.), garden plants such as rhubarb (*Rheum palmatum*, Polygonaceae), and herbs containing alkaloids used in over-the-counter (OTC) medicines, such as ephedra (although such OTC drugs contain either the synthetic alkaloids ephedrine or pseudoephedrine, not a natural chemically-complex extract of the herb). However, the "how and why" of their use in Japanese Kampo practice may be unique. For example, cinnamon is used as a warming agent, rhubarb (*Rheum*)



Pictured above is a classic 100-drawer cabinet called *hyakumitansu*, which is used for storing herbal medicines. Each drawer contains one herb. From left to right: ginseng root, skullcap root, atractylodis root, magnolia bark and pinellia tuber.

officinale, Polygonaceae) root is used as a cooling agent, and ephedra is used to elicit sweating. Each is used as one component of a multi-herb formula in a set ratio with presumed synergy. For instance, the addition of cinnamon to ephedra significantly enhances ephedra's anti-tussive and diaphoretic properties.

In North America, echinacea (*Echinacea* spp., Asteraceae) is frequently used as an herbal remedy to prevent or treat symptoms of the common cold or upper respiratory illness. However, in Japan, as many as 20 different Kampo multi-herb formulas are prescribed with precision for colds and flu syndromes. The choice of agent is dictated by the patient's constitutional state termed the *sho* (correlated to the term *zheng* in the differential diagnosis employed in traditional Chinese medicine)—which is determined from the patient's history and a physical exam, in conjunction with the stage of the illness.

Determining the patient's *sho* is quite important for a Kampo diagnosis. New categories of thought used for assessing a patient include 4 basic categories: *yin* and *yang*, hypofunction or hyperfunction (body energy), hot or cold (heat energy), and interior or exterior (location of symptoms). Physicians also refer to 6 stages of illness, which correspond to observable changes over time in illnesses. Three states are characterized as *yang* (febrile, relatively external and active) and 3 states are considered *yin* (cold, internal, and passive).

The patient's state of illness and overall sho, as diagnosed by a clinician, determine the type of Kampo treatment prescribed. For instance, a fatigued patient with poor digestion who presents with acute onset of chills, headache, nasal congestion, and moist skin would typically be prescribed keishito (cinnamon decoction) for his or her tai yang stage of illness. Keishito, one of Kampo's most important base formulas, consists of cinnamon (keihi) bark, peony (Paeonia spp., Paeoniaceae) root, jujube fruit (Ziziphus jujuba, Rhamnaceae), licorice, and ginger (Zingiber officinale, Zingiberaceae). This combination is the foundation for multiple other Kampo formulas. However, should the patient with the same cold have a stronger constitution and no perspiration, different formulas would be used for the same tai yang stage of disease. Either maoto (ephedra decoction) or kakkonto (kudzu decoction) would be appropriate based on the constellation of additional symptoms. Maoto consists of ephedra, apricot kernel (Prunus armeniaca, Rosaceae), cinnamon, and licorice. Kakkonto consists of the base formula keishito with the addition of 3 more herbs: kudzu (Pueraria lobata, Fabaceae) root, cinnamon, and ephedra.

Kampo practitioners gather information through 4 exams: *boushin* (visual examination of the patient's face, nails, and tongue), *bunshin* (use of the sense of smell and hearing), *monshin* (questioning regarding physical state including bowel and bladder function as well as physical sensations such as coldness),

and sesshin (physical examination of the pulse and abdomen). Key to this approach is the emphasis on use of the senses rather than on quantified measurements such as blood pressure, temperature, heart rate, etc. While the latter biomedical measurements are employed in modern Kampo practice, Kampo practitioners clearly prioritize observational "sense" data over objective, quantifiable data. Likewise, Kampo practitioners emphasize the subjective, qualitative, and intuitive aspects of the patient's presentation. In this fashion, Kampo practitioners practice true patient-centered care.

Unique to traditional Asian medicine traditions is the examination of the tongue and of the pulse. Both exams provide important information about the constitutional state of the body. However, especially unique to Kampo is the prioritization of the abdominal exam. Fukushin is the term used to describe the unique abdominal diagnosis by palpation found in Kampo. For each region of the abdomen, temperature, peristaltic movement, aortic pulsation, tenderness, muscular tone, and resistance to pressure are assessed. Kampo practitioners also assess for a "splashing" sound in the epigastric region. These assessments are not found in conventional Western medicine. Their results are crucial for



Ritsurin Garden, Kagawa, Japan, contains many medicinal herbs. The park was completed after more than 100 years of construction over five generations of the Matsudaira family.

prescribing the correct Kampo formula. For example, *Keishito* is often appropriate for patients with bilateral rectus muscle tension. *Ninjinto* (ginseng decoction, made from the roots of *Panax ginseng*, Araliaceae) is appropriate for patients with succession sounds due to stagnant stomach fluid. And bupleurum (*Bupleurum falcatum*, Apiaceae—*saiko* in Japaenese) rootbased formulas are highly appropriate for patients with *kyokyo-kuman*, substernal resistance to palpation.

Kampo's Shared Roots with Other Asian Medicine Traditions

Kampo, like other forms of Traditional Asian Medicine, is based upon classical Han Dynasty texts and their associated ways of diagnosing and treating illness. These texts arrived in Japan via Korea beginning in the 6th century CE. International exchange of such texts continued until the end of the 9th century. Chinese medical textbooks imported during this period include the 2 classic texts authored by the famous physician Zhang Zhong Jing: the Shokanron (傷寒論, Shang Han Lun in Chinese; Treatise on Cold Damage in English) and the Kinki-Yoryaku (金匱要略, Jinkui Yaolue in Chinese; Essential Prescriptions from the Golden Coffer in English). The oldest extant herbal medicine text in Japan, the Ishimpo (医心方, roughly translated as The Core Approach of Medical Practice), dates from the year 984. These 30 volumes were compiled by Yasuyori Tanba using imported texts.





Above are three illustrations of fukushin, Kampo's unique abdominal signs and diagnoses first developed by Saramata Takera (1573-1614). These are from the original text titled Hyakyufuku Zusetsu written by Dosan Manase (1507-1594). (Photos courtesy of the Keio University Historical Library.) The upper left illustration demonstrates the abdominal signs ideal for the formula termed shosaikoto. The middle illustration is for the formula termed shashinto. And the far right illustration is for ninjinyoueito and shokenchuto. Ninjinyoueito has the potential to remyelinate demyelinized neurons (J Neurosci Res. 84:954-56, 2007).

Pictured at left is abdominal diagnosis in current practice. The methods followed today are the same from the time that Dosan Manase wrote *Hyakufuku Zusetsu*.



The Separate Development of Kampo

During Japan's Kamakura (1192-1333), Nanbokucho (1334-1391), Muromachi (1392-1573) and Azuchimomoyama (1574-1603) periods, Japanese medicine was influenced strongly by Buddhist monks and others educated in Song and Ming China.[†] During the 16th century in Japan, the influential Goseihoha school (後世方派, "Future Way School") developed, which sought to incorporate herbal medicine, moxa and acupuncture into one therapeutic approach. This was led by the Japanese physician Dosan Manase, author of the famous text the *Keitekishu* (警笛集) (1574). This book's content was derived from medical texts of the Song, Jin-Yuan, and Ming-era Chinese texts, as well as from the author's personal experiences. Manase's book emphasized simplicity and practicality, ideas which served as the foundation for Kampo's unique development.

During the Edo (Shogun) era (1604 to 1868), under the government policy termed *kaikin* (海禁 "maritime restrictions") or *sakoku* (鎖国 "lock up of country"), Japan's borders were closed to all but a very limited amount of contact with Dutch East Indies Company employees on man-made Dejima Island in Nagasaki Bay. On penalty of death, Japanese citizens could not leave the country and foreigners could not enter the country. After 1641, all international connections were extremely limited; this included even neighboring Chinese who were officially limited to Dejima Island. Unofficial trade did exist but came with great risk as it was not approved by the government. At Dejima, Japan first learned of Western science and of internal human anatomy via physicians who shared their Dutch medical and anatomical texts.[‡]

During this time of national seclusion, Kampo further developed into its uniquely Japanese approach. The *kohoha* classicist school (古方派) proclaimed the motto "return to the Shang Han Lun" (*Shang Han Lun* is the Chinese term for the book noted previously, *Shokanron* in Japanese) but, in fact, it downplayed or rejected abstract concepts such as *yin* and *yang* as well as the doctrine of the 5 elements (fire, earth, metal, water, wood). This school did, however, emphasize the Shang Han Lun's 6 stages of illness, which were previously described.

From this school and the famous physician Yoshimasu Todo (1702-1773) came the important principles of *sho* (証) ("constitutional state of the body") as well as *ki-ketsu-sui* (気血水) (qi, blood, water). The patient's *sho* became the guide for proper prescribing. Moreover, the clinician was taught to look for signs of pathologic change in *qi*, blood, or water balance. *Ki-ketsu-sui* is Kampo's theory of pathologic mechanisms and their treatments. Additionally, Dr. Yoshimasu established the unique Japanese diagnostic approach of abdominal palpation for assessment of one's *sho* (証) and thus determination of the appropriate herbal formula.

The confluence of multiple schools of thought led Kampo teachers and apprentices to incorporate new medical theories and practices and develop compromise schools of thought (i.e., *setchuha* and *kanransetchuha*). These included, to varying degrees, knowledge of Western medicine, including human anatomy. This confluence appears to be where Kampo developed its very pragmatic, empirical approach. Those elements incorporated into the new schools of

[†]The first great teacher of herbal medicine in Japan was the blind monk Ganjin (Zhianzhen in Chinese) who arrived in the year 754. Native texts from that period are no longer in existence. However, in 756 Ganjin brought 60 types of herbs from China to the ancient capital of Nara; these herbs were included in the offerings to the *Daibutsu* (great Buddha) at the Todaiji Temple on behalf of the emperor Shomu on the 49th day after his death. The 60 samples include herbs from Persia and Europe imported to Asia via the Silk Road. Examples include licorice, rhubarb, cinnamon, and ginseng. These are kept as national treasures and are available for viewing once a year in the Imperial Storehouse in Nara termed *Shosoin*.

⁺The arrival of Dutch medicine not only influenced Kampo's development but Western medical and botanical history as well. Willem ten Rhijne (1647-1700), upon returning from Japan to Europe in 1676, introduced classical Chinese medicine to the West. This included the West's first medical essay on acupuncture *De Acupunctura* (1683). Similarly, Engelbert Kaempfer's 1690 drawings of Japanese plants were said to have been used by Carl Linnaeus. In 1775, Linnaeus' star pupil, Carl Peter Thunberg, arrived in Japan after studying Dutch for 3 years in South Africa. During his year-long stay, he collected more than 800 unique specimens of flora. Upon returning to Sweden, he wrote several books on Japan including the *Flora Japonica* (1784).

Table 1: Top 10 Kampo Formula Sales for 2007

Rank	Name of Formula	Sales(US \$)*	General usage of the Formula
1	Hochuekkito	60,516,430	cancer, infections, autoimmune diseases etc (immune boosting)
2	Daikenchuto	48,169,470	prevention of ileus after surgery
3	Saireito	42,620,070	autoimmune diseases
4	Kamishoyosan	33,448,870	menopausal syndrome
5	Shosaikoto	29,125,620	common cold, hepatitis
6	Bakumondoto	26,401,930	cough bronchitis
7	Goshajinkigan	25,888,220	neuralgia, back pain
8	Rikkunshito	23,859,550	functional dyspepsia
9	Tokishakuyakusan	21,378,860	premenstrual syndrome and dysmenorrhea
10	Shoseiryuto	21,374,290	allergic rhinitis

*Conversion rate: US \$1=¥118.04(yen) (Aug 7th, 2007) provided by Japan Kampo Medicine Manufacturers Association

Table 2: Recent Annual Kampo Expenditures in Japan

Year	Yen (approx)	US \$ (approx)
2004	92,300,000,000	782,000,000
2005	94,100,000,000	797,000,000
2006	95,200,000,000	807,000,000

*Conversion rate: US \$1=¥118.04 (yen) (Aug 7th, 2007)

Table 3: Sales of Leading Kampo Manufacturers in Japan for 2006

Rank	Company	Sales (US \$)			
1.	Tsumura	657,404,000			
2.	Kracie	83,869,000			
3.	Osugi Seiyaku	21,180,000			
4.	Kotaro Kampo Seiyaku	17,790,000			
5.	Honso Seiyaku	10,166,000			
*Conversion rate: US \$1=¥118.04 (yen) (Aug 7th, 2007)					





Above photo: **Ephedra** *Ephedra sinica* (termed *mao* in Japanese) Left photo: **Peony** *Paeonia lactiflora* (termed *shakuyaku*)

thought included anything found to be helpful, no matter what the source. Thus, heavy dependence on esoteric philosophy was de-prioritized in favor of methods of treatment established by practical experience. Notable texts from the end of the Shogun era include 2 that are frequently consulted today: the *Futsugo Yakushitsu Hokan* and the *Futsugo Yakushitsu Hokankuketsu* by Sohaku Asada.

After Japan's civil war in 1868, the Shogunate government was replaced and the imperial family returned to power in what is termed the Meiji Restoration. During the Meiji era (1868-1912), Japan overtly rejected traditional cultural elements, including Kampo, and encouraged their replacement with Western equivalents, including Western medicine. For more than 100 years, the government openly suppressed traditional herbal medicine and promoted Western medicine. This governmental policy supported advances in surgery and immunization as well as in pharmaceutical research, which led to the isolation of the alkaloid ephedrine from the Kampo herb *mao (Ephedra sinica*), by Nagayoshi Nagai in 1887.

This active suppression changed in 1976 when Toru Takemi, MD, the powerful president of the Japanese Medical Association, successfully led legislative efforts to incorporate Kampo into the national formulary. As a result, today 148 ancient, multi-herb formulas are included for reimbursement under the guaranteed universal healthcare coverage by the Japanese government. Annual sales of Kampo formulas now total more than one billion US dollars.

Herbal General Anesthesia in 1804 using Kampo

The first general anesthesia for surgery is commonly believed to have been conducted by William E. Clark using inhaled diethyl ether at Boston's Massachusetts General Hospital in 1846. However, 42 years earlier in Japan, Seishu Hanaoka (1760-1835) successfully induced general anesthesia for invasive surgery using an orally-administered multi-herb formula.

Herbal anesthesia began in early recorded history with opium (*Papaver somniferum*, Papaveraceae) in Sumeria and cannabis (*Cannabis sativa*, Cannabaceae) in China and later with a wide variety of species such as datura (*Datura* spp., Solanaceae)¹ in Europe, Asia, and the Americas. However, Seishu Hanaoka was the first person to successfully combine herbs for induction of general anesthesia. His first patient underwent a successful resection of a breast cancer.

Seishu Hanaoka studied Kampo medicine in Kyoto with the noted physician Nangai Yoshimasu. He spent 20 years in research before he arrived at the multiherb formula termed Tsusensan. Ingredients included Datura alba, Aconitum japonicum (Ranunculaceae), Angelica dahurica (Apiaceae), Angelica decursiva, Ligusticum wallichii (Apiaceae), and Arisaema japonicum (Araceae). Two to 4 hours after ingesting this formula, patients would lose the capacity to feel pain and then fall unconscious. Effects could last as long as 24 hours. Known active ingredients include the anti-cholinergic agents scopolamine, hyoscyamine, and atropine. Additional active ingredients include aconitine and angelicotoxin.

Reference

 Busia K. JimsonWeed: history, perceptions, traditional uses, and potential therapeutic benefits of the genus Datura. *HerbalGram*. 2006;69:40-50.

Kampo Today

Kampo differs from other Traditional East Asian Medicines, including those of Taiwan, Korea, Vietnam, Classical China and the People's Republic of China (PRC), by its focus on an empirically-verified, standardized approach that de-prioritizes classical philosophical theory, emphasizes the importance of abdominal diagnosis, and standardizes both doses and formulas.

Every licensed physician in Japan can practice and prescribe Kampo herbal medicines if he or she wishes. In fact, more than 70% of surveyed physicians from a 2003 report claimed to prescribe Kampo.³ However, few physicians train using classical texts. For many physicians who prescribe Kampo frequently, Pictured at right is the rhizome of ginger (*Zingiber officinale*) after boiling and drying.

such as orthopedic surgeons, general surgeons, and gynecologists, only a few formulas are necessary to know and prescribe for the needs of their respective specialties. Knowledge of pulse diagnosis and 5 element theory is not believed necessary for the benefit of patients. However, knowledge of both tongue and abdominal diagnosis is quite important for recognizing a patient's *sho* ($\overline{\mathbb{R}}$) and for determining the correct prescription.

Kampo formulas in Japan are typically

prescribed at set doses and set ratios of the multi-herb ingredients. These doses tend to be much smaller than doses used in China. The actual herb species utilized may differ as well. Occasionally, the doses prescribed in Japan can be supplemented with the addition of small amounts of single herbs such as *bushi* (附 子) (*Aconitum* spp.) or *yokuinin* (coix seed, *Coix lacrymaa-jobi*, Poaceae).

Unlike the many thousands of herbal formulas currently in use in China, Japan's Kampo tradition focuses on the 148 formulas covered by the national health insurance plan. Rarely are formulas used outside of this group. One example of an additional Kampo formula sometimes prescribed in Japan but not included in the 148 government-covered formulas is *ifuto* for inflammatory bowel disease. This formula is a set dose, set ratio 8-herb formula that would be used based on empirical experience as well as abdominal exam/sho diagnosis. This would be prepared by prescription using fresh herbs at special pharmacies in Japan.

Overwhelmingly, the primary reason for a physician's prescribing of Kampo is the perceived limited efficacy of Western medicines. Physicians consulted for the 2003 survey³ noted that the availability of Kampo greatly expands the range of treatment options for non-specific patient concerns. The 5 most common reasons for prescribing Kampo are, in descending order: autonomic imbalance (including menopausal symptoms), constipation, acute upper respiratory illnesses, cramps, and allergic rhinitis. The 10 most commonly prescribed formulas are found in Table 1.

Kampo Safety

Kampo medicines are pharmaceutical-grade prescription drugs. The Kampo Medicine Manufacturing Association meets or exceeds governmental Good Manufacturing Practice (GMP) standards for each of the 148 formulas. This includes extensive testing for confirmation of proper species identity, as well as testing for microbial, heavy metal, or pesticide contamination. Each formula is standardized using at

least 2 marker compounds. And, most importantly, extensive post-marketing safety surveillance is conducted by the government with the participation of the prescribing physicians. This has confirmed the safety for formulas containing such ingredients as ephedra, aconite, and licorice. For identified safety issues, such as interstitial pneumonitis from use of interferon agents with *Shosaikoto*, the Japanese government has required publication of black box or red box warnings for physicians and patients.

Innovative Research

There is a heavy emphasis on basic science in Japan that extends from conventional Western medicine to also include research on Kampo. Human subject research is exceedingly rare in Japan. For Kampo, although some clinical trials exist, randomized, placebo controlled trials that meet Consolidated Standards of Reporting Trials (CONSORT) standards for quality have yet to be conducted. (The CONSORT standards, which are endorsed by leading medical journals and professional societies, identify information considered essential in the reporting of two-group parallel randomized, controlled trials.⁴)

In Japan, historical experience guides physicians' prescribing practices. Thus, university-based Kampo research is geared toward deepening the understanding of the mechanisms of action. As noted in the recent *HerbalGram* review of *Juzentaihoto*,² extensive pre-clinical research has been conducted on clinically-useful Kampo formulas in the past 30 years. Somehow this treasure trove of pre-clinical data, including data on the treatment of cancer, has been largely overlooked by the West. Such data, however, has been incredibly helpful for the recent rapid IND approval of 4 Kampo



Aconitum carmichaelii and related species of the family Ranunculaceae are frequently prescribed for warming. This herb, termed *bushi* in Kampo, is also called informally *Torikabuto*, meaning the formal headwear for court nobles.

In Japan, if prescribed by a physician, herbal medicines in processed and unprocessed forms are covered by the national health insurance system.







formulas by the US FDA. (Such IND approval merely indicates that the herbal formulation can be subjected to human clinical trials and is not an acknowledgement by the FDA of the product's purported activity or benefits, although it does presume the formula's consistency and relative safety.)

Innovative Kampo research today includes analysis of the intestinal metabolism of herbs and the subsequent changes in host gene expression. Such research calls upon gene chip and protein chip technologies as well as systems biology thinking to understand the complex mechanisms of action inherent in multiherb, multi-receptor targeting agents. Use of 3-dimensional high performance liquid chromatography with advanced mathematical modeling supports standardization of Kampo interventions for clinical trials. There is adequate reason to believe that such research will lead to enhancements in the health of aging populations and in preventing the onset of disease. Exciting results are being published this year on ulcer, influenza and multiple sclerosis treatments.

Conclusion

Today, Kampo is gaining greater attention and recognition within the West. Even after the opening of Japan's sealed borders in the late 1860s, Japan's medical system has had relatively limited openness to inquiries and evaluation by the West. Today, however, there is increasing interest and openness among Kampo practitioners to sharing insights from Kampo with professionals and markets in the West. This represents a remarkable new opportunity to understand in a deeper sense human illness, herbal properties, and herbal medicines. Through Kampo's unique perspective, herbalists can enrich their understanding of commonly used herbs. Herbal researchers can appreciate the many decades of solid pre-clinical research conducted on standardized formulas. Patients can appreciate the prioritization of their subjective experience. And everyone can appreciate the emphasis on safety found in Kampo prescription medicines. As stated in an ancient Japanese proverb, 温故知新 (on ko chi shin): "Revisiting past wisdom leads to new knowledge." HG

Gregory A. Plotnikoff, MD, MTS, FACP, an internist and pediatrician, is the medical director of Allina Health Care's Institute for Health and Healing in Minneapolis, Minnesota. From 2002 to 2007, he served as a visiting associate professor in the Center for Kampo Medicine at Keio University School of Medicine in Tokyo, Japan.

Kenji Watanabe, MD, PhD, FACP, an internist with a doctorate in immunology and post-doctorate training in genetics, is the director of the Center for Kampo Medicine at Keio University School of Medicine in Tokyo, Japan.

Fumiko Yashiro is a junior double-majoring in Biology and Studio Art at Carleton College in Northfield, Minnesota.



This path in the Ritsurin garden leads to a Japanese tea ceremony house where healthy green tea is served in formal style.

Recommended Resources

Japanese Society of Oriental Medicine. *Introduction to Kampo: Traditional Japanese Medicine*. Elsevier, Tokyo. 2005.

Keio University School of Medicine Department of Kampo Medicine Web site. Available at:

http://web.sc.itc.keio.ac.jp/kampo/english/index.html.

References

- Wen J. Sho-saiko-to, a clinically documented herbal preparation for treating chronic liver disease. *HerbalGram.* 2007;73:34-43.
- 2. Plotnikoff GA. Juzen-taiho-to: scientific evaluation and clinical applications [book review]. *HerbalGram.* 2006;72:70-71.
- 3. Kanpo yaku Shi Yo Jittai Chosa (Kampo medicine's contemporary use). *Nikkei Medical*. October 2003: 33-39.
- Gagnier JJ, Boon H, Rochon P, Moher D, Barnes J, Bombardier C. Improving the quality of reporting randomized controlled trials evaluating herbal interventions: implementing the CONSORT statement. *HerbalGram.* 2006;71:50-56.

Interview with Masaki Kitajima, MD: World Famous Surgeon and Prescriber of Kampo

By Gregory A. Plotnikoff with Kenji Watanabe and Fumiko Yashiro

In July of 2007 in Tokyo, we met with Dr. Masaki Kitajima, an accomplished surgeon who has published over 1350 peer-reviewed articles and contributed to over 250 books. His international leadership of teams and organizations has resulted in 2 profound changes in surgical practice: sentinel node biopsy and minimally-invasive, robotsupported surgery. Dr. Kitajima was elected Dean of Keio University School of Medicine for 2 consecutive terms and served until his mandatory retirement age. He is the first Japanese surgeon to serve on the editorial board of the New England Journal of Medicine, and he has likewise served as editor or participated on the editorial boards of several additional leading medical journals. He has been named an honorary fellow of the Royal College of Surgeons in London. Dr. Kitajima happily agreed to sit down with us and discuss his use of Kampo herbal medicines in his treatment of patients. His abridged responses to some of our questions are below:

How did you become interested in traditional Japanese herbal medicine?

At an international congress on gastric cancer in Seoul, I suffered from an intestinal stricture and perforation secondary to a parasitic infection. This shut down my intestinal functioning and required that I have a naso-gastric tube placed to decompress my abdomen. I knew from studies on the mechanism of action of Daikenchuto* that this Kampo medicine would increase my intestinal blood flow and restart my intestinal movement, both of which would have good effects on my recovery. My condition improved slowly, but the Daikenchuto had good effects on my intestinal movement and recovery. Since then, I have used it for all of my abdominal surgery patients to speed their recovery.

All Japanese doctors know the positive clinical effects of Kampo, but most of us do not know the mechanism of action of Kampo. As Dean of Keio's School of Medicine, I instructed Dr. Kenji Watanabe to study Kampo's mechanisms of action using the most advanced modern scientific techniques. As more information became available on Kampo, I was sure that Daikenchuto was a good drug for creating better conditions for patients' recovery compared to Western drugs. Kampo is very mild and very effective.

For your patients, do you prescribe both traditional Japanese herbal medicines and Western pharmaceuticals?

Yes. When I learned of the mechanisms of action of Kampo, I thereafter emphasized the impor-

tance of the combination—the harmonization of Kampo with Western drugs. This is very important. When I trained at Harvard's Massachusetts General Hospital, my mentor at that time, Professor John F. Burke, taught me the importance of harmonization between technology and surgery. I kept this concept into my tenure as chairman of surgery. Therefore, I developed minimally invasive surgery such as laparoscopic surgery. This has included development of realistic tactile sensation for robotic-assisted surgery.

I believe that the harmonization between advanced surgical techniques, such as is found in Western medicine, in conjunction with Kampo medicine, is very important for the future aspects of medicine. I will soon chair a clinical trial protocol development committee meeting with representatives from 40 to 50 Japanese hospitals. One arm of the study will be Daikenchuto and one arm will be placebo. We will then compare the 2 groups after colorectal cancer surgery. Daikenchuto has such good effects, based on my personal and professional experience. If we have good results from this study, I will want to publish this in the *New England Journal of Medicine*.

Are you conducting any other studies of Kampo formulas in cancer care?

Currently, we have a Ministry of Health, Labor and Welfare-funded clinical trial underway on Hochuekito that we administer after gastrectomy for stage II and stage III stomach cancer. We are following quality-of-life concerns and analyzing blood samples for changes in biochemical markers.

In the future, I would like to study chemo-radiation plus Kampo for advanced gastrointestinal cancer. I want to avoid chemo-radiation injury with (concomitant) use of Kampo.

Further, Kampo is an immune system stimulator. So if we can know the immunological effect on cancer, then we can take studies to the next level. Specifically, I would like to see more on Kampo's stimulation of dendritic cells as well as repression of cancer stem cells.

For patients, there is much work to be done. I want to send information on Kampo all over the world. In the near future, I plan to offer chemo-therapy, radiation, and Kampo to all my patients with cancer.

*Daikenchuto is a 3-herb mixture of ginseng (ninjin, *Panax ginseng*, Araliaceae) root, Sichuan pepper (sanshou, *Zanthoxylum piperitum*, Rutaceae) fruit, and processed ginger (kankyou, *Zingiber officinale*, Zingiberaceae) root, in a base of maltose syrup.

Trade Associations Request Withdrawal of FDA's Draft Guidance on Labeling Requirements of AER Act

By Courtney Cavaliere

A draft guidance issued by the US Food and Drug Administration (FDA) in January of 2008 has recently become the object of intense criticism by dietary supplement trade associations.¹ The draft guidance is intended to assist the dietary supplement industry in complying with the labeling requirements of the Dietary Supplement and Nonprescription Drug Consumer Protection Act ("the AER Act"). The American Herbal Products Association (AHPA), the Council for Responsible Nutrition (CRN), and the Natural Products Association (NPA) have submitted comments to FDA requesting that the draft guidance be withdrawn.^{2,3,4} The AER Act, which went into effect in December of 2007, requires marketers of dietary supplements and over-the-counter (OTC) drugs to maintain records of all adverse events reported to the manufacturer and submit reports to the FDA of those incidents meeting the definition of "serious" adverse events.

According to the draft guidance, dietary supplement labels must include a domestic address or phone number for receiving adverse event reports.¹ The FDA has concluded that this entails either a full US mailing address (complete with street address or post office box number) or a phone number with an area code. The FDA further recommends in its guidance that all dietary supplement labels include a clear, prominent statement informing consumers that the domestic address or phone number may be used for reporting serious adverse events associated with the product. The FDA stated in the draft guidance that it intends to exercise enforcement discretion for the new labeling requirements until January 1, 2009. The requirement to document adverse events and report serious events to the FDA is currently in force as of December 22, 2007.

In comments submitted to the FDA in March, AHPA pointed out that the FDA had no statutory requirement to issue a draft guidance on the labeling of dietary supplements under the AER Act and that FDA has called for the inclusion of label information that is not actually required by the Act.² According to AHPA, long-standing regulations for foods, drugs, medical devices, and cosmetics have held that a company's place of business need not include a street address if it can be found in a city directory. The FDA explained in the draft guidance that it has suggested a full mailing address because the agency believes consumers may choose to not submit a report if they believe it would not be received due to an incomplete address.

"This is really quite stunning," stated AHPA President Michael McGuffin, in an AHPA press release distributed in January.⁵ "If FDA is stating that the information that has been required on food, drug, medical device and cosmetic labeling since 1938 is somehow inadequate to communicate to consumers, AHPA assumes that FDA would seek a global change in the law to address any perceived inadequacy and would not single out this industry and the OTC drug industry as targets for its hypothesis."

AHPA also objected to FDA's recommendation that companies include a statement about the use of the address or phone number for submitting serious adverse event reports.² In its submitted comments, AHPA stated that this FDA recommendation "blatantly ignores the stated intent of Congress," as the Senate Committee on Health, Education, Labor, and Pensions clearly expressed its intention to refrain from any statement other than providing the address or phone number. For these and other reasons, AHPA requested that the draft guidance be withdrawn in its entirety.

CRN made arguments similar to those expressed by AHPA in its own comments, also submitted in March.³ Like AHPA, CRN argued that a full mailing address and a prefatory statement would be unnecessary for dietary supplement labels. CRN requested that FDA withdraw the guidance draft or, "at a minimum, undergo the normal notice and comment rulemaking process for these interpretations of the Act."

"We are dismayed that FDA has introduced these new labeling requirements, seemingly out of nowhere, particularly because there is no legislative authority in the statute for these requirements," said Steve Mister, president and CEO of CRN (e-mail, January 10, 2008). "It's particularly troubling that the agency has chosen to try to impose these requirements through a draft guidance. These kinds of sweeping deviations from the stated intent of Congress at least require full notice and comment rulemaking."

CRN argued that, despite being presented as recommendations within a guidance draft, the language within the document clearly demonstrates that FDA plans to view many of the recommendations as mandatory requirements that would be enforced.

"The primary purpose of this legislation has always been to assure consumers that when a company receives a complaint of a serious adverse event, it will provide that information to FDA. The agency has pasted its own agenda onto the intent of Congress and tried to do so without using the proper administrative procedures," said Mister.

NPA sent comments to the FDA in February, also requesting that the guidance draft be withdrawn.⁴ Like AHPA and CRN, NPA pointed out that the AER Act was not intended to require burdensome re-labeling of products and that a full mailing address and a prefatory statement would be unnecessary for dietary supplement labels. NPA even conducted a survey of supplier members before submitting its comments to the FDA to evaluate the effectiveness of current product labels in enabling consumers to file complaints or adverse event reports. According to the survey's findings, the vast majority of surveyed firms claimed to receive complaints or adverse event reports by phone or e-mail, with a very clear minority citing mail as the most often used form of consumer communication. Such information indicates that there are multiple sufficient channels—including the Internet—by which consumers are able to contact or find contact information about companies, without requiring extensive product label changes.

AHPA, CRN, and NPA all argued that the new recommended label changes would be costly for supplement companies. AHPA pointed out that some companies might already be in compliance with the domestic address recommendation for supplement labeling, but no supplement labels are likely to currently contain a prefatory statement about using the phone number or address to report serious adverse events.² Therefore, AHPA has stated that 100%

Legal & Regulatory

of supplements would need to be relabeled in order to meet this recommendation. CRN added that FDA has also underestimated the amount of time it would take for industry to comply with the new labeling requirements.

The Small Business Association's (SBA) Office of Advocacy sent a letter to the FDA in February expressing its concerns over the draft guidance, largely due to the costs small dietary supplement companies would incur in order to meet the new labeling recommendations.⁶ SBA suggested that the FDA reanalyze the possible effects of these recommendations on the dietary supplement industry and consider making the guidance a rulemaking subject to notice and comment.

"We have heard from several of our members that FDA has far underestimated the financial projections for manufacturers to revise their labels," said Mister. "The agency doesn't seem to appreciate the time and expense involved to make even minor changes to supplement labeling. Someone, potentially consumers, will have to absorb these costs. The agency should reevaluate whether these mandatory changes would really best serve consumers given these added costs."

At *HerbalGram*'s press time, the FDA had not directly responded to these requests for withdrawal of the draft guidance. HG

References

1. US Food and Drug Administration. Draft guidance for industry: questions and answers regarding the labeling of dietary supplements

as required by the Dietary Supplement and Nonprescription Drug Consumer Protection Act; availability. 73 *Federal Register* 197. January 2, 2008. Available at: http://frwebgate.access.gpo.gov/cgi-bin/getpage. cgi?dbname=2008_register&position=all&page=197. Accessed January 2, 2008.

- 2. McGuffin M, Young A. Comments of the American Herbal Products Association on the Food and Drug Administration's draft guidance for industry titled "Questions and answers regarding the labeling of dietary supplements as required by the Dietary Supplement and Nonprescription Drug Consumer Protection Act" and on the Food and Drug Administration's draft guidance for industry titled "Questions and answers regarding the labeling of nonprescription human drug products marketed without an approved application as required by the Dietary Supplement and Nonprescription Drug Consumer Protection Act." Docket Nos. 2007D-0491 and 2007D-0496. March 3, 2008.
- Shao A. Re: Docket No. 2007D-0491, CFSAN 200755. Draft guidance for industry: Questions and answers regarding the labeling of dietary supplements as required by the Dietary Supplement and Nonprescription Drug Consumer Protection Act. March 3, 2008.
- Fabricant D. Re: Docket No. 2007D-0491, draft guidance for industry: Questions and answers regarding the labeling of dietary supplements as required by the Dietary Supplement and Nonprescription Drug Consumer Protection Act. February 27, 2008.
- 5. FDA issues labeling guidance on SAER law [press release]. Silver Spring, MD: American Herbal Products Association; January 2, 2008.
- Sullivan TM, Rayford LL. Letter to the Honorable Andrew C. von Eschenbach, MD. February 28, 2008. Available at: http://www.ahpa. org/Portals/0/pdfs/08_0228_SBA_Letter_to_FDA_re_SAER_Guidance.pdf. Accessed March 11, 2008.



©American Botanical Council; reprinted with permission. The American Botanical Council is an independent nonprofit, educational, member-supported organization, dedicated to promoting responsible use of herbs, medicinal plants, phytomedicines, and other plant-derived ingredients. For more information about ABC, its journal HerbalGram, or membership, visit www.herbalgram.org.

Herbal Supplement Sales in United States Show Growth in All Channels

By Courtney Cavaliere, Patrick Rea, and Mark Blumenthal

Sales of herbal dietary supplements demonstrated steady growth in multiple market channels during 2006 and 2007. Such growth occurred even within the mainstream market channel (i.e., food, drug, and mass market retailers, referred to as FDM) in 2007, which marks the first time that sales have increased within this particular channel in several years. Unpublished sales statistics gathered from various primary and secondary sources by *Nutrition Business Journal* (NBJ) show that total estimated herb sales in the US market rose 4.1% in 2006 compared to 2005. Preliminary research on 2007 sales indicate a 4.4% increase over 2006 (see Table 1*).

Herbal dietary supplements are sold in the United States through a variety of market channels, including health and natural food stores; FDM outlets; warehouse stores; convenience stores; mail order, radio and television direct sales, and Internet sales; companies that sell directly to the consumer (often called network marketing or multi-level marketing [MLM] companies); health professionals in their offices (e.g., acupuncturists, chiropractors, naturopaths, some conventional physicians), and other channels. Whereas Information Resources Inc. (IRI) and other market data companies such as ACNielsen are able to generate relatively accurate data of herbal dietary supplement sales for the FDM channel through cash register and computer scanning records, the majority of sales channels lack such econometric tracking services and are thus estimated with a lesser degree of accuracy. However, by pooling various sources of available data and modeling the remaining multi-channel firms, NBJ has arrived at a total estimated figure for all US herbal dietary supplement sales in 2006 of \$4,590,000,000 and a figure of \$4,791,000,000 for 2007.

According to data supplied by IRI of Chicago, sales of single herbal dietary supplements in the FDM channel declined by an almost imperceptible amount of 0.2% from 2005 to 2006, but such sales then rose by 7.6% in 2007 for a total figure of \$267,757,500 (see Tables 2 and 3).¹ The IRI data, considered by many industry experts as probably the most reliable econometric sales data available on herbal supplements for this market channel, does not include sales reports from Wal-Mart, Sam's Club, and other large warehouse buying clubs, or from convenience stores. The inclusion of such additional data would likely increase the reported figures considerably, particularly since Wal-Mart is considered the largest single retail seller of dietary supplements in the United States.

The 25 top-selling single herbal dietary supplements within the FDM channel, as determined by IRI, are listed in Table 2. Despite the overall increase in herbal dietary supplement sales in the FDM channel, Table 2 shows that only 5 of the 25 top-selling single-herb supplements increased in sales from 2006 to 2007, with all others showing slight to moderate declines. Such data suggests that the majority of growth can be attributed to increased sales in combination herbal supplement products, less popular single-herb supplements, and the emerging popularity of superfruit products such as acai, goji, mangosteen, and noni.

Soy (*Glycine max*, Fabaceae) dietary supplements achieved the greatest sales of all single-herb supplement products in the FDM

Table 1. Total Estimated Herb Sales in All Channels 1994—2007

Year	\$ Total Sales (millions)	% Increase (-decrease)
1994	2,020	N/A
1995	2,470	22.3
1996	2,990	21.1
1997	3,557	19.0
1998	4,002	12.5
1999	4,110	2.7
2000	4,260	3.6
2001	4,397	3.2
2002	4,315	-1.9
2003	4,210	-2.4
2004	4,320	2.6
2005	4,410	2.1
2006	4,590	4.1
2007	4,791	4.4

Source: Nutrition Business Journal, www.nutritionbusiness.com

Nutrition Business Journal (NBJ) primary research includes NBJ surveys of supplement manufacturers, distributors, MLM firms, mail order, Internet and raw material and ingredient supply companies, as well as numerous interviews with major retailers (Wal-Mart, Costco, etc.), manufacturers, suppliers and industry experts. Secondary sources include Information Resources Inc., SPINS, ACNielsen, Natural Foods Merchandiser, Whole Foods Magazine, Insight, The Hartman Group, company data and other published material.

Table 2: 25 Top-Selling Herbal Dietary Supplements in the Food, Drug, and Mass Market Channel in the United States for 2007

Common Name	Latin Name	\$2007 Sales (USD)	\$2006 Sales (USD)	2006 Rank	% Change 2007
1. Soy	Glycine max	25,607,360	30,811,880	1	-16.89
2. Cranberry	Vaccinium macrocarpon	23,776,000	19,240,930	3	23.57
3. Garlic	Allium sativum	20,504,280	23,483,000	2	-12.68
4. Ginkgo	Ginkgo biloba	17,796,270	15,929,620	5	11.72
5. Saw Palmetto	Serenoa repens	16,953,710	18,054,700	4	-6.10
6. Echinacea	Echinacea spp.	14,402,290	15,864,630	6	-9.22
7. Black cohosh	Actaea racemosa ⁺	8,641,608	8,682,563	8	-0.47
8. Milk Thistle	Silybum marianum	8,622,245	8,398,151	10	2.67
9. Ginseng*	Panax ginseng	8,389,630	8,758,258	7	-4.21
10. St. John's wort	Hypericum perforatum	8,132,429	8,615,591	9	-5.61
11. Green Tea	Camellia sinensis	4,977,682	5,347,117	11	-6.91
12. Evening Primrose	Oenothera biennis	4,154,262	4,559,142	12	-8.88
13. Valerian	Valeriana officinalis	2,947,351	3,250,407	13	-9.32
14. Horny goat weed	Epimedium spp.	2,220,767	2,258,881	14	-1.69
15. Bilberry	Vaccinium myrtillus	1,814,102	2,003,993	15	-9.48
16. Grape seed	Vitis vinifera	1,713,729	1,883,251	16	-9.00
17. Yohimbe	Pausynystalia johimbe	1,192,684	1,399,628	17	-14.79
18. Red clover	Trifolium pratense	1,149,684	1,314,696	18	-12.55
19. Horse chestnut seed	Aesculus hippocastanum	994,735	1,261,516	19	-21.15
20. Ginger	Zingiber officinalis	658,572	820,053	20	-19.69
21. Aloe vera	Aloe vera	655, 563	623,291	21	5.18
22. Elderberry	Sambucus nigra	525,274	542,140	22	-3.11
23. Olive leaf	Olea europaea	296,372	331,150	24	-10.50
24. Hawthorn	Crataegus laevigata	234,158	233,165	26	0.43
25. Kava kava	Piper methysticum	231,912	265,738	25	-12.73
	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·

Total All Herb Sales (including herbs not shown)

\$267,757,500 **±** \$248,874,000 **±**

7.6

Source: Information Resources Inc. (http://us.infores.com/)

*It is not clear from the IRI data whether this figure also includes the sales of American ginseng root products (made from *Panax quinquefolius*), the sales of which are not as high as sales from supplements made from Asian ginseng (*P. ginseng*).

[†]The commonly used synonym and previously accepted binomial is Cimicifuga racemosa.

[‡] The total annual sales of herbal dietary supplements in the FDM channel shown here does not include sales from Wal-Mart and warehouse clubs (e.g., Costco, Sam's) and constitutes approximately 5.4% of total herb sales in 2006 and 5.6% in 2007.

channel in both 2006 and 2007. In 2005, IRI reported that soy ranked as the 6th top-selling herbal dietary supplement in the FDM channel, with sales of \$14,497,100.² Soy sales rose dramatically over the next year, with sales almost doubling between 2005 and 2006. Although soy sales dropped by over 16% in 2007 from 2006, such sales were still sufficient for soy to maintain its number 1 rank among all herbal dietary supplement products in this category.

Cranberry (Vaccinium macrocarpon, Ericaceae) dietary supplement sales have experienced significant steady growth over the past few years. Sales of cranberry, which was ranked as the number 5 top-selling single herb dietary supplement in the FDM channel in 2005, increased by 21.5% from 2005 to 2006. Cranberry supplement sales have since increased by nearly 23.6% from 2006 to 2007, and cranberry has become the second highest selling single-herb dietary supplement in the FDM channel. As positive data continue to be released on the health benefits of cranberry, this supplement's steady growth in sales may be poised to continue. In January of 2008, the Cochrane Collaboration released a systematic review of 10 randomized controlled trials,

Year	\$ Total Sales*	change from previous year
1998	731,651,520	
1999	710,794,944	-3.0
2000	590,953,088	-15.1
2001	337,431,200 ⁺	-21.0
2002	293,397,664	-13.9
2003	278,212,100	-5.0
2004	257,514,900	-7.4
2005	249,425,500	-3.7
2006	248,874,000	-0.2
2007	267,757,500	7.6

Table 3: Total Estimated Herbal Dietary Supplement Sales inUS Food, Drug, and Mass Market (FDM) Channel—1998-2007

*Data from Information Resources Inc. (IRI) and published in various Market Report articles in previous issues of *HerbalGram* (i.e., issue numbers 49, 51, 55, 58, 66, and 71).

⁺Starting in 2001, IRI stopped reporting data from Wal-Mart stores, a significant share of the sales in the FDM channel.

	20	03	200	4	2005		2006		2007	
	\$ Sales (millions)	% Growth								
Total Single Herbs	2,733	5.2%	2,768	1.3%	2,786	0.7%	2,954	6.0%	3,090	4.6%
Total Combina- tion Herbs	1,478	-14.0%	1,554	5.1%	1,625	4.6%	1,636	0.7%	1,701	3.9%
Total Herbs	4,210	-2.4%	4,321	2.6%	4,411	2.1%	4,590	4.1%	4,791	4.4%

Table 4. Herb Sales by Category in All Channels: Singles (Monopreparations) vs. Combinations

Source: Nutrition Business Journal, www.nutritionbusiness.com

which concluded that cranberry products may prevent recurrent urinary tract infections in women.³ (For more on this review, read the article on page 28.)

Superfruit products, meanwhile, have experienced some of the greatest recent sales growth within the herbal supplement sector. Sales of acai (*Euterpe oleracea*, Arecaceae) products, for instance, increased by 86% in 2007 compared to 2006. The total 2007 sales figure for acai is estimated at \$30,000,000, two-thirds of which is attributed to sales within the natural and health food channel, according to data from NBJ. Goji (*Lyceum* spp., Solanaceae) and mangosteen (*Garcinia mangostana*, Clusiaceae) juice products also experienced significant sales growth, primarily through the direct sales channel. Goji juice sales rose 50% in 2007 for a total estimated sales figure of \$98,000,000, and mangosteen juice sales increased by 30% for a total estimated sales figure of \$191,000,000. Sales of noni (*Morinda citrifolia*, Rubiaceae) juice, another popular superfruit liquid botanical product, rose 8% in 2007, earning an estimated sales total of \$278,000,000.

Both single and combination herbal dietary supplements have experienced growth in sales in recent years, according to data from NBJ (see Table 4*). According to the most recent figures, sales of single-herb supplements (monopreparations) grew by 4.6% in 2007, while sales of combination-herb supplements grew by 3.9%. Monopreparations have consistently remained the more popular products, pulling in almost twice as much in sales as combinations. NBJ data further indicate that all market channels seem to have experienced growth in herbal dietary supplements in 2007 (see Table 5). NBJ's 2007 data has estimated a total of \$752,000,000 in herbal dietary supplement sales in the US mass market channel (which does include sales from Wal-Mart, club warehouses, and convenience stores), representing a 5.5% increase in sales from 2006. The larger natural and health food (e.g., GNC, Whole Foods Markets, Vitamin Shoppe, Vitamin World, et al.) and direct sales (including MLM companies such as Herbalife, Nature's Sunshine, Nutrilite, Shaklee, et al.) channels also demonstrated growth in 2007, at 2.9% and 5.0%, respectively. HG

References

- 1. FDM Market Sales Data for Herbal Supplements, 52 weeks ending Dec 30, 2007 and 52 weeks ending Dec 31, 2006. Chicago, IL: Information Resources Inc.
- Blumenthal M, Ferrier GKL, Cavaliere C. Total sales of herbal supplements in United States show steady growth. *HerbalGram.* 2006:71;64-66.
- 3. Jepson RG, Craig JC. Cranberries for preventing urinary tract infections. *Cochrane Database of Systematic Reviews*. 2008:Issue 1.

* Some sales figures provided in Table 1 and Table 4 differ slightly from figures provided for those same years in Table 1 and Table 4 of *Herb-alGram*'s 2005 market report article, published in issue 71. Updated information and analyses occasionally lead NBJ to adjust prior data. The figures supplied in this article are currently considered the most up-to-date sales statistics by NBJ.

Tab	le 5. He	erb Sales	s by Cha	nnel for	2006 & 2	2007

Channel	\$ Sales 2006	\$ Sales 2007	
Channel	(millions)	(millions)	% Increase
Mass Market*	713	752	5.5%
Natural & Health Food [†]	1,493	1,537	2.9%
Direct Sales [‡]	2,382	2,501	5.0%
Total	4,591	4,790	4.3%

Source: Nutrition Business Journal, www.nutritionbusiness.com

* Mass market includes food/grocery, drug, mass merchandise, club and convenience stores, including Wal-Mart, Costco, etc.

⁺ Natural & health food include supplement and specialty retail outlets, including Whole Foods, GNC, sports nutrition stores, etc.

[‡] Direct Sales include Mail Order (including catalogs), direct mail and direct response TV and radio; practitioners representing conventional and alternative practitioners selling to their patients, including ethnic herbals and herb shops; Multilevel (MLM) or network marketing representing firms like Advocare, Herbalife, Nature's Sunshine, NuSkin (Pharmanex), Nutrilite (Amway/Quixtar), Shaklee, etc.

Commentary on Dan Hurley's book, Natural Causes: Death, Lies, and Politics in America's Vitamin and Herbal Supplement Industry

By Annette Dickinson, PhD

Editor's note: In January 2007 the publication of Dan Hurley's book, Natural Causes: Death, Lies, and Politics in America's Vitamin and Herbal Supplement Industry,¹ was accompanied by a high-profile public relations campaign, which included the author's being interviewed on a two-part segment on CBS Evening News as well as an essay by the author in the New York Times.² Unfortunately, some of the erroneous information in the book was repeated in both venues, e.g., the author's statement that the US Poison Control Center's database for adverse event reports on drugs and dietary supplements contains over 1.6 million case reports of adverse reactions to dietary supplements from the years 1983–2004, an egregious error that was eventually corrected by the New York Times after it received numerous letters exposing that error and other mistakes and misinterpretations in Mr. Hurley's essay.³ (The database records "exposures," many or most of which are not necessarily adverse reactions.)

Annette Dickinson, PhD, a scientist and formerly a longtime staff member and officer of the Council for Responsible Nutrition (CRN), a leading dietary supplement industry trade association, has submitted the following review of this book. Due to the extensiveness and critical nature of this review, we have decided to publish it as both a book review and guest editorial. As with other guest editorials, Dr. Dickinson's views do not necessarily reflect the views of HerbalGram or the American Botanical Council.

Dan Hurley has written a book that he obviously hopes will be the springboard for a new and more stringent approach to regulating dietary supplements. From the prologue to the conclusion, and all 11 chapters in between, its tone reeks of classic muckraking—colorful, horrific tales liberally laced with cries of outrage and calls to action. However, it is as singularly biased on the negative side as he claims dietary supplement promotion to be on the positive side, as outrageous in its overall message as the most egregious claims of the most inventive snake-oil peddler. Some readers may find Hurley's diatribe to be reminiscent of the writings of that longtime critic of dietary supplements, Stephen Barrett, MD, of Quackwatch, and for good reason. In the notes, Hurley asserts that although Barrett is never mentioned in the book, he was "indispensable" in providing information and reviewing the manuscript.

In his book, Hurley repeatedly demands to know why consumers are so devoted to dietary supplements, despite the defects he identifies regarding the scientific underpinnings of research, the credibility of the industry, and the quality and safety of some products. He will probably never understand the deep and lasting appeal of dietary supplements, because his entire context for thinking about

them is based on erroneous premises and assumptions. Hurley insists on viewing the industry and the whole dietary supplement phenomenon as if it were part and parcel of the pharmaceutical world and therefore controlled by the same rigid requirements that apply there. Yet he also seems to recognize that dietary supplements are not part of that world and eloquently enumerates the many ways in which the two worlds differ, but he somehow cannot let go of the conviction that supplements *ought* to be drugs.

Hurley traces the development of dietary supplements back to patent medicines, but this is a bogus parentage. Patent medicines evolved into over-the-counter (OTC) drugs, not into dietary supplements (although some nutrients were then used for drugs and are now approved for drug uses). The true conceptual and practical origin of dietary supplements emerges from the world of food, which also has its share of eccentricity and in some respects is just as obsessed with concerns about health and disease. Food habits and some specific foods have enjoyed a special place in every culture as preventatives or cures, apart from their everyday appeal as part of the traditional diet. Carrots are good for eyesight, fish is brain food, and chicken soup is good for what ails you. These were bywords in American households when today's baby boomers were toddlers. The ancient Greeks said food is medicine, and scientists as well as ordinary folks still believe that "we are what we eat."

People tend to choose foods because they are delightful and gorgeous and tasty, not primarily because of their relative effectiveness in sustaining life and growth and reproduction. Most of us know in our hearts—and it is documented in national surveys that we don't eat perfect diets and often fall short of getting all the nutrients we need. It logically follows that we can improve this situation by taking a few supplements of the nutrients we know we are missing from our diets. It's not just about scientific proof of benefit or rigorous demonstration of preventive powers—it's about the reasonable expectation that if we get all the nutrients we need, we will be better off than if we don't.

The dietary supplement industry as we know it in the United

States actually started when vitamins were discovered in the first few decades of the 20th century. As soon as these seemingly miraculous substances were isolated and identified, they appeared in the marketplace, and the vitamin industry was off and running. Vitamins appeared in the form of tablets and were also added to foods, cosmetics, and chewing gum. According to business reports of the day, retail sales of vitamin supplements grew four-fold from 1925 to 1927, tripled again by 1929, then increased almost ten-fold by 1939.⁴

Clearly, the intensity of consumer interest in supplements is not a new phenomenon. The American Medical Association was already complaining in an article published in 1938 that the public was "vitamin crazy."⁵

When the "new" 1938 Food, Drug and Cosmetic Act was passed (replacing the original 1906 Act), legislators were well aware of the



phenomenon of vitamin supplements, and the rightful legal classification of these products got serious consideration. In the end, the legislators created a special provision for "foods for special dietary use." Those uses, as defined by the Food and Drug Administration (FDA) in regulations promulgated in 1941, specifically included supplementing the diet.⁶ Thus, the passage of the Dietary Supplement Health and Education Act (DSHEA) in 1994 did not break new ground in classifying dietary supplements as foods. Rather, it established a specific definition for dietary supplements and re-confirmed that this class of products belonged in the food category, where it had already been placed more than 50 years earlier by the 1938 Act.

When FDA made its first sweeping attempt to limit the potencies and formulations of vitamin and mineral supplements in a rule finalized in 1973, it was not for reasons of safety but in order to impose "rationality" as dictated by the conventional medical view of nutrition. Hurley writes on page 268 that "Senator Proxmire's 1976 bill to prohibit the FDA from setting maximum safe doses of vitamins and minerals was wrong then, and it is wrong now."1 But he mistakes the reasoning behind FDA's action and fails to mention that the vitamin regulations were overturned twice by the courts, in addition to being firmly rejected by Congressional action.^{7,8,9} Dietary supplement consumers then and now want their supplements to be safe and believe they are safe when used with reasonable judgment, but they feel no obligation to toe the line on nutritional orthodoxy where their food and supplement choices are concerned.¹⁰ As Hurley recognizes, many supplement users in the 1970s were also forging their own path in supporting organic food production and vegetarianism, at a time when both-like the use of vitamin supplements-were considered somewhat kooky rather than positively mainstream, as they are today.

Twenty years after its first attempt to limit vitamins and minerals, FDA again threw down the gauntlet. FDA Commissioner David Kessler convened an internal task force to make recommendations about how supplements should be regulated (commonly referred to as the "Dykstra Report," named for the FDA official Gary Dykstra who headed the task force). The task force findings were the basis for an Advance Notice of Proposed Rulemaking in June 1993.¹¹ Hurley mistakes the date and misses the critical importance of this report, which concluded that limits should be put on vitamins and minerals, that amino acids should be banned from supplements as illegal food additives, and that herbs were unsafe and frequently used for therapeutic purposes and therefore should be regulated as drugs. This proposal reeked of the same authoritarian arrogance that had doomed the 1973 regulations, and it galvanized the final passage of DSHEA.

Hurley devotes an entire chapter called "Kessler vs. Kessler" (pages 72–103)¹ to the events surrounding the passage of DSHEA, but it is wildly incomplete. The trade associations that spent untold time and effort in the lobbying campaign for DSHEA must be surprised, if not shocked, to find that Hurley gives them no credit (or blame, as he would see it) for the success. Instead he attributes the entire victory to the efforts of Gerald Kessler, who was and continues to be a wild card within the industry. Kessler is the founder and owner of the dietary supplement company called Nature's Plus, and he's the founder of a relatively small, single-interest industry-consumer group, the Nutritional Health Alliance (NHA), which was a vocal participant in the lobbying effort to pass DSHEA. Perhaps the literary allure of posing the legislative

effort as a battle between FDA's David Kessler and the industry's Gerry Kessler was simply too tempting, and Hurley gave in to it, but the challenge of getting two thirds of the Senate and over half of the House to sign onto the legislation as cosponsors was a major feat and definitely not accomplished single-handedly by any one person or group. The full story of the passage of DSHEA has yet to be told.

It is true, as Hurley claims, that a major factor in the passage both of the 1976 vitamin bill and of DSHEA in 1994 was the phenomenal outpouring of consumer support, as demonstrated by sustained avalanches of letters, phone calls, and personal visits to Congress by citizens demanding that senators and representatives protect the consumer's right to choose the supplements they wanted and needed to preserve their own health. Gerry Kessler's NHA was one of the groups-but not the only one-that worked at the grassroots level in the 1990s, whereas others, including the National Health Federation, had taken on that role in the 1970s. However, the passion and persistence of that consumer outpouring cannot be dismissed as the mere product of an industry campaign. That kind of intensity can be effectively utilized as part of an industry effort, but it cannot be created from scratch, as many other industries with deeper pockets have discovered. That kind of intensity can only come from a deep well of genuine consumer devotion to a product category combined with real outrage against restrictions threatened by a government out of touch with reality.

Hurley asserts on page 102 that DSHEA was responsible for the "breathtaking"1 elimination of the simple food/drug dichotomy that had long been a fundamental premise of food and drug law, but in fact that particular feat had already been accomplished by the Nutrition Labeling and Education Act of 1990 (NLEA). Until 1990, FDA had enforced a bright line between food and drug claims, vigorously prohibiting any disease-related claims for foods. For the first time, NLEA created a category of disease claims (called "health claims") that would be permitted for foods, including dietary supplements. These claims were defined as statements about the association between a substance in food and a disease or health-related condition, and the law allowed such claims to be authorized by FDA only after a stringent review of the scientific evidence. NLEA was a giant step onto a slippery slope, because once it was accepted that disease claims legally could be made for foods, it became difficult or impossible to keep those claims within the corral initially envisioned by the law. The courts ruled against FDA's denial of some health claims on First Amendment grounds, thus creating a new category of "qualified health claims" that must include language attempting to explain to consumers how much or how little evidence exists for the claim. The later provisions of DSHEA regarding "statements of nutritional support" (including claims about the effect of a substance on the structure and function of the body) pale in comparison to the NLEA breakthrough allowing health claims for foods and would not have been politically feasible without that precedent.

Hurley's book contains an abundance of cautionary tales about the horrific effects of some extreme treatments, and he appears to believe that these tales should deter reasonable consumers from ever taking so much as a vitamin again. But the horrific effects are not all due to dietary supplements, and frankly some of the stories are too bizarre to serve as a deterrent to reasonable people making generally rational choices. His opening story is about a woman (a nurse, no less!) who seeks out several extreme topical treatments for

a lesion on her nose. (Topical products are by definition applied to the skin, are not ingested, and are therefore *not* legally classified as *dietary* supplements. One of the topical treatments contained the highly potent root of the American medicinal plant bloodroot [*Sanguinaria canadensis*, Papaveraceae]). After persisting with the treatment *way* beyond the point where she should have realized something was terribly wrong, she discovered the stuff had basically eaten her nose off. Nobody in their right mind is going to identify with this story as having any relationship to ordinary dietary supplements or to the usual choices made by reasonable consumers.

Hurley does cite some well-known examples of serious problems in the dietary supplement industry, including (1) the tryptophan disaster in 1989 in which a manufacturing error by a Japanese supplier resulted in contaminated tryptophan (an essential amino acid) in dietary supplements that caused an outbreak of serious muscle and neurological symptoms and caused a number of deaths, and (2) the ephedra (*Ephedra sinica*, Ephedraceae) controversy that extended over a full decade before FDA banned the product in 2004. Hurley insists on treating these examples as being typical of the consumer experience with dietary supplements, but in fact neither is characteristic of the dietary supplement industry as a whole, any more than contaminated spinach or the current craze for extreme energy drinks are characteristic of the food industry as a whole.

There is a larger problem that Hurley lays at the door of the dietary supplement industry (page 187 and following),¹ but in reality the phenomenon he identifies is a fraud perpetrated *against* the



industry as well as against vulnerable consumers. It is the marketing of street drugs under the guise of dietary supplements, despite the fact that these products are clearly not intended "to supplement the diet" but are intended for use as recreational drugs. It is unfortunate but true that many young people appear to be driven to discover and abuse the latest "upper" or "enhancer" on the market, and FDA's lax enforcement permits pushers of recreational drugs to masquerade the latest fad product as a dietary supplement. This problem can be addressed only through persistent enforcement efforts on the part of FDA and the Drug Enforcement Agency, and such enforcement is strongly supported by the mainstream dietary supplement industry.

Referring to some of the key figures in the ephedra controversy or in the promotion of street drugs, Hurley marvels that so many "leading figures" of the dietary supplement industry are "convicted felons," but the people and companies he cites are in no way leaders or even genuine members of this industry. They play in another game entirely: the game of manufacturing and marketing illicit drugs, and they are interlopers in the dietary supplement industry. They are the "black knights" so rightly abhorred by Dan Hurley's good industry friend, "Mitchell" Balbert, the founder and former CEO of what has become a large supplement company, known to the rest of us by his real name of Elliott. It would probably be a cheap shot to suggest that the depth of Hurley's understanding of the industry is approximately equal to his accuracy in recording Balbert's name, but it's hard to resist.

Hurley makes other false assertions—so many that it is difficult to know how to address them all in a commentary shorter than his book. For example, contrary to his claim that FDA's efforts to finalize Good Manufacturing Practices (GMPs) for dietary supplements have been shot down by industry, the fact is that the industry trade associations support the need for these GMPs and celebrated publication of the Final Rule on June 25, 2007. In fact, it was the industry that submitted a GMP proposal to FDA within a year after the passage of DSHEA. That document was published by the agency in 1997 as an Advance Notice of Proposed Rulemaking, followed in 2003 by a Proposed Rule.^{12,13} By the time the Final Rule was published, many companies had already implemented new GMPs that met or exceeded the official requirements.

Hurley deplores a court decision overturning an FDA rule that would have required unit-dose packaging for high-dose iron products and wrongly concludes that there are no special packaging rules to protect children against accidental overdoses of iron (page 178).¹ The fact is that child-resistant closures have been required for ironcontaining dietary supplements since 1978, under rules promulgated by the Consumer Product Safety Commission (CPSC).14 The court later ruled against an additional FDA requirement for unit-dose packaging for some products, not because it was a bad idea, but because it is the CPSC-not FDA-that has primary authority in the area of protective packaging.¹⁵ The bottom line is that, contrary to Hurley's belief, iron-containing dietary supplements are required to have child-resistant closures under CPSC rules and are also required to bear a black-box warning about the dangers of accidental childhood poisoning under more recent FDA rules.16

Dan Hurley appears to believe that the dietary supplement industry's "expansion" into pharmacies is a new and ominous development, intended as a stealth move to increase the credibility of dietary supplements, but this reflects a fundamental

misunderstanding of the structure and history of the business. The dietary supplement marketplace has always included a mass market segment as well as a specialty market segment, with different companies supplying each distribution system. In fact, in the 1930s and 40s there was an effort on the part of pharmacies to obtain a monopoly on the sale of vitamin supplements, but it failed, and thus the products continued to be available not only in pharmacies but also in health food stores, grocery stores, convenience stores, and gas stations, as well as by mail order and multilevel marketing (aka network marketing) companies. Nevertheless, pharmaceutical companies were early and successful competitors in the vitamin market. An article in *Fortune* in 1945 listed some of the leading companies in the mass market at that time, including Upjohn, Mead Johnson, Squibb, Abbott, and Eli Lilly.¹⁷

Hurley preaches ad nauseum about the virtues of relying on scientific evidence as the major (or sole) basis of consumers' decision-making about supplements, yet he shows the classic journalist's tendency to take the latest research article as the final word, without putting the findings in the overall context of all the available information on a particular subject. For example, an abundance of evidence exists regarding the benefits of supplemental calcium and vitamin D in increasing bone density during the growing years and in slowing the rate of bone loss during aging, and no less than three NIH (National Institutes of Health) consensus conferences have confirmed this. Yet Hurley is prepared to toss all of that evidence out as irrelevant and accept the highly controversial findings of the massive but flawed Women's Health Initiative as the final word (page 174).¹ In contrast, most calcium researchers share the opinion of the Surgeon General of the United States, who affirmed in a recent report that calcium and vitamin D supplements can be bone-savers for people who are not getting enough in their diets.¹⁸

Another example is the long held theory that vitamin E may help protect against heart disease (and other diseases),¹⁹ and in 1993 two large cohort studies from Harvard showed that people who took more than 100 IU of vitamin E for at least 2 years in the form of supplements had about a 40% reduction in risk of heart

disease.^{20,21} As Hurley points out, most of the controlled clinical trials of vitamin E have been disappointing, but it is also true that most of them have been done in people who *already had* heart disease. Such trials are testing vitamin E as a treatment, not really as a preventive agent. It is notable, however, that one of those trials did find that vitamin E

dramatically reduced the risk of having a second heart attack.²² In a study in 40,000 healthy women, vitamin E reduced heart disease mortality by 24% in women over 45 and by 49% in women over 65.²³ Thus, the evidence is not as uniformly bleak as Hurley suggests, and researchers in the antioxidant field remain convinced that generous intakes of vitamin E have benefit.²⁴ When vitamin E is supported by some major studies and by key researchers, it cannot be viewed as anti-scientific for consumers to continue to believe in its likely benefits.

Hurley accepts without question the astounding hypothesis (page 171),¹ put forward in one meta-analysis,²⁵ that high doses of vitamin E may increase overall mortality. He ignores the many flaws in that statistical analysis. He also appears to be unaware that

the comprehensive safety report prepared for the NIH multivitamin conference in 2006 by Johns Hopkins University debunked the meta-analysis, saying that based on a review of the data "along with consideration of biological plausibility, we find no convincing evidence to suggest vitamin E supplement use increases risk of death per se."^{26,27}

Multivitamins also receive their share of criticism in this book. Hurley claims that in general "our trust in vitamins and minerals has been misplaced." In a colorful if incomprehensible turn of phrase, he says on page 181, "The very bedrock of the dietary supplement industry turns out to be a swamp where the facts go to die."1 In fact, many of the most respected nutritional experts in the country firmly endorse the notion that it would make sense for most adults to take a multivitamin daily. Harvard's Walter Willett in his book Eat, Drink, and Be Healthy even proposes a revised Food Pyramid that includes a sidebar recommending "Multiple Vitamins for Most."28 UCLA's David Heber suggests adopting the "basic four" supplements to go along with the basic 4 food groups; these would include a multivitamin, extra calcium, extra C, and extra E.²⁹ Dr. Bernadine Healy, MD, who was the first woman to be appointed as director of the NIH and later served as head of the American Red Cross, said in an editorial in U.S. News and World Report on March 12, 2007, that common sense suggests that people should avoid smoking, eat lots of fruits and vegetables, decrease saturated fats, "enjoy fish and maybe even fish oil tablets," take supplements of calcium and vitamin D, and "add on a multivitamin."30 These and other experts provide ample support for consumers who choose to adopt the sensible habit of taking a multivitamin daily as part of a healthy lifestyle.

If Hurley is hard on vitamins, that's nothing compared to the vitriol he heaps on herbal products. Leaving aside his lengthy rehashing of the ephedra issue, he dwells on problems with the sourcing and potential contamination of herbs, especially those imported from Asia. He highlights a case of kidney failure in a woman taking herbs contaminated with the Chinese herb *fang chi* (Aristolochia fangchi, Aristolochiaceae) that contained nephrotoxic and carcinogenic aristolochic acid. He also cites cases of

heavy metal poisoning from the use of Ayurvedic products and tells of products labeled as herbs that were found to contain potent pharmaceutical ingredients. These are genuine problems that are taken seriously by responsible elements within the herb industry as well as the government problems new GMPs will be very helpful in addressing. He lampoons the National

Center for Complementary and Alternative Medicine (NCCAM) at NIH, saying it had become "a haven for witch doctors doing voodoo science" (page 245)¹; that is, before the previous NCCAM director, the late Stephen Straus, MD, cleaned house and began producing sound scientific results, most showing that various herbal treatments—including St. John's wort (*Hypericum perforatum*, Clusiaceae), echinacea (*Echinacea* spp., Asteraceae), and saw palmetto (*Serenoa repens*, Arecaceae)—failed to perform up to expectations, at least as measured within the limited design of the particular trials. In fact, recently published controlled clinical trials on various preparations made from these 3 herbs have shown positive results, and systematic reviews and meta-analyses of multiple randomized clinical trials on each have concluded that

"You are entitled to your own opinion, but you are not entitled to your own facts."

despite mixed results from various trials, some preparations made from each of these herbs *do* provide clinically-documentable benefits.^{31,32,33}

Had Mr. Hurley taken the time to really comb through the wealth of published randomized controlled clinical trials on these three herbs (and others), abstracts for which are available on Medline and other accessible databases, as well as systematic reviews and meta-analyses from the Cochrane Collaboration, he would have discovered, as various reviewers and meta-analyzers have, that despite mixed results, there is substantial evidence supporting the therapeutic benefits of numerous clinically-studied herbs and phytomedicines. In other words, the potential therapeutic benefits of these herbs cannot be easily dismissed.

Hurley seems ready to write off the whole category of botanicals, yet the World Health Organization recognizes the value of herbal medicine, which is relied upon almost exclusively by a large part of the world's population, particularly in developing countries. In the United States, the NIH has funded at least 6 centers of excellence in botanical research at major universities. In many European countries, botanical treatments are approved for many uses and are respected by the medical community as well as by consumers, so there is clearly a more promising side of the story, as documented in numerous publications of the American Botanical Council, as well as elsewhere. But we get not a glimpse of that more positive, evidence-based story in Hurley's book.

Proving that a little learning is a dangerous thing, Hurley dips into the reports compiled by the National Association of Poison Control Centers and comes up with the false notion that tens of thousands of people are being poisoned by vitamins, herbs, and other dietary supplements every year. It is true that the Poison Control Centers receive an enormous number of calls from consumers, but it is not true that each of those calls represents a case of harm. If Aunt Alice finds little Johnny in the middle of the living room floor gleefully waving around a bottle of vitamins and calls the Poison Control Center to find out what she should do, that counts as a report-even though the child never actually got his hands on one of the tablets and no event of any kind occurred. In the 2004 annual report tabulating almost 2.5 million calls received by Poison Control Centers in that year, tables show the products most frequently involved in "exposures."34 These include cosmetics, cleaning products, analgesics, toxic ornamental houseplants, and vitamins-the types of products most likely to be present in a household and thus the most readily accessible to young children, who account for fully half of all exposures. For 2004, there were 126,507 calls to Poison Control Centers about vitamins, minerals, herbs, and other supplements. Only 326 of these (0.3%) are identified as involving serious effects-a matter for concern but not the epidemic that Hurley would have us believe is occurring.

Hurley ends with a "baker's dozen" list of 13 actions that should be taken to improve the state of the dietary supplement industry and to protect consumers. Some of these actions would be endorsed not only by consumer and health groups but also by leading trade associations in the industry, including my own *alma mater*, the Council for Responsible Nutrition. Hurley calls for "seed to shelf" quality control of products (page 264),¹ a concept described and supported by CRN some years ago.³⁵ Such control is precisely the goal of the new dietary supplement GMPs, which are supported by all the major dietary supplement industry associations as well as numerous other nonprofit advocacy groups allied with the industry. He also calls for mandatory reporting of serious adverse events by companies in the industry (page 265),¹ and I am glad to report that Congress recently enacted a law, with the support of the trade associations as well as many other groups, that now requires such reporting. The law was introduced into Congress by long-time supplement industry allies Senators Tom Harkin [D-IA] and Orrin Hatch [R-UT]. Hurley calls for better labeling and more safety testing and higher funding for FDA (pages 265–268).¹ He suggests that NCCAM be eliminated. In its place, he urges that an expert review be conducted by the National Academy of Sciences, resulting in monographs describing those dietary supplements considered to be safe and effective for specific uses. He further suggests that reimbursement by Medicare, Medicaid, and health insurance be allowed for products found to be effective in the expert review.

But Hurley's true agenda is not the accomplishment of finite achievable goals such as those mentioned above. It is much broader and, frankly, more sinister. His true agenda appears to be to control the flow of information, so that people learn only what he believes they should know.

Hurley says the media should be held accountable for the information they provide and should be responsible for not running false advertising (page 270).¹ This sounds like a good start, doesn't it? On the same page, he says the media should do a better job of informing people about supplements. Again, this sounds reasonable. He even provides an example of something specific the media should do to accomplish this: "For one, they should stop routinely quoting the Council for Responsible Nutrition, which is merely a trade group promoting their members' products, despite its attempts to position itself as a purveyor of the 'science behind the supplements."1 Really? Muzzling CRN is his number one idea? Does he imagine that reporters from the major newspapers and TV stations don't know that CRN is a trade association? The fact is, reporters go to CRN and other associations for comment precisely in order to get the industry view and thus provide the critical "balance" editors demand in a story-or the added element of controversy that makes an article more interesting. Even if CRN's scientists weren't sought out specifically because of their industry affiliation, on what grounds should they be prevented from commenting on the hot scientific findings of the day?

But it isn't only CRN that Hurley would like to muzzle. He goes on to say that the media should be cautious in general about covering good news about supplements, because their coverage may lead consumers to rely on the stories and buy "products that have undergone no serious scientific or regulatory scrutiny" (page 271).¹ We can only be grateful that the likes of Hurley were not in control of our Constitution and our Bill of Rights, or else the Founding Fathers could never have created our democratic form of government or given us the precious guarantee of freedom of speech.

In Senator Barack Obama's book, *The Audacity of Hope: Thoughts on Reclaiming the American Dream* (Crown 2006), he tells the story of a confrontation between the late Senator Patrick Daniel Moynihan and another colleague, a disagreement they ultimately failed to resolve. The other senator said he supposed he was entitled to his own opinion on the matter. Senator Moynihan responded, "You are entitled to your own opinion, but you are not entitled to your own facts."³⁶

Dan Hurley is entitled to pontificate about dietary supplements as much as he likes, but he is not entitled to make up his own facts. I have tried in this commentary to correct at least some of the erro-

neous statements that abound in his astonishing book. HG

Annette Dickinson, PhD, is a consultant on dietary supplement regulation and food and nutrition policy. She worked in Washington, DC, for over 30 years for the Council for Responsible Nutrition (CRN), a trade association of the dietary supplement industry. She was responsible for regulatory and scientific affairs and served as CRN's president prior to her retirement in 2005. Dr. Dickinson was appointed in 2002 to serve a 3-year term on the FDA's Food Advisory Committee and was appointed by President Clinton to the Commission on Dietary Supplement Labels (1995–1997). She earned her PhD in nutritional science from the University of Maryland.

References

- 1. Hurley D. Natural Causes: Death, Lies, and Politics in America's Vitamin and Herbal Supplement Industry. New York: Broadway Books; 2006. [ISBN 0-7679-2042-2; \$23.95.]
- 2. Hurley D. Diet Supplements and Safety: Some Disquieting Data. New York Times. January 16, 2007; F1:5.
- Revisiting a poison control database on supplement risks. New York 3. Times. February 6, 2007; F3:6.
- Vitamins Go To War. Business Week. July 10, 1943:57-68.
- Miller LM. The Vitamin Follies. Hygeia. November 1938:1004-1005,1045.
- Food and Drug Administration. Definition of "special dietary uses" and 6. label regulations for food represented for special dietary uses. Federal Register, 1941;6:5921.
- National Nutritional Foods Association v FDA, 504 F2d 761 (2d Cir 7. 1974), cert. denied, 420 US 946 (1975).
- National Nutritional Foods Association v Kennedy, 572 F2d 377 (2d Cir 8. 1978)
- 9. Pub L No. 94-278, Title V, sections 501-502, 90 Stat. 410-413 (1976). [The vitamin bill, adding a new Section 411 to the FD&C Act.]
- 10. CRN Consumer Confidence Survey, 2006. Washington, DC: Council of Responsible Nutrition; 2007.
- 11. Food and Drug Administration. Advance Notice of Proposed Rulemaking Regarding Dietary Supplements. Federal Register.1993;58:33690.
- 12. Food and Drug Administration. Advance Notice of Proposed Rulemaking, GMPs for Dietary Supplements. Federal Register. 1997;62:5700.
- 13. Food and Drug Administration. Proposed Rule, Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Dietary Ingredients and Dietary Supplements. Federal Register. 2003;68:12158.
- Consumer Product Safety Commission. Poison Prevention Packaging. Substances requiring special packaging.16 CFR 1700.14(a)(13).
- 15. Nutritional Health Alliance v FDA, 318 F3d 92 (2d Cir 2003).
- 16. Food and Drug Administration. Labeling of dietary supplements containing iron. 21 CFR 101.17(e).
- 17. The Vitamin Business. Fortune Magazine. May 1945:140.
- 18. Surgeon General of the US. Bone health and osteoporosis: A report of the Surgeon General. Published July 1994. Available at http:// www.surgeongeneral.gov/library/bonehealth/chapter_5.html. Accessed February 22, 2008.
- 19. Shute WE. Vitamin E for Ailing and Health Hearts. New York, NY: Pyramid Books; 1972.
- 20. Stampfer MJ, Hennekens CH, Manson JE, Colditz GA, Rosner B, Willett WC. Vitamin E consumption and the risk of coronary disease in women. N Engl J Med. 1993;328:1444-1449.
- 21. Rimm EB, Stampfer MJ, Ascherio A, Giovannucci E, Colditz FA, Willett WC. Vitamin E consumption and the risk of coronary heart disease in men. N Engl J Med. 1993;328:1450-1456.
- 22. Stephens NG, Parsons A, Schofield PM, Kelly F, Cheeseman K, Mitchinson MJ. Randomized controlled trial of vitamin E in patients with coronary disease: Cambridge Heart Antioxidant Study (CHAOS). Lancet. 1996;347:781-786.
- 23. Lee IM, Cook NR, Gaziano JM, Gordon D, Ridker PM, Manson JE, Hennekens CH, Buring JE. Vitamin E in the primary prevention

of cardiovascular disease and cancer: the Women's Health Study: a randomized controlled trial. JAMA. 2005;293:1338-1347.

- Traber MG. How much vitamin E?...Just enough! Am J Clin Nutr. 2006;84:959-960.
- 25. Miller ER, Pastor-Barriuso R, Dalal D, Riemersma RA, Appel LJ, Guallar E. Meta-analysis: High-dosage vitamin E supplementation may increase all-cause mortality. Ann Intern Med. 2004;142:37-46.
- 26. NIH State-of-the-Science Conference on Multivitamin/Mineral Supplements and Chronic Disease Prevention. May 15-17, 2006. NIH Web site. Available at: http://consensus.nih.gov/2006/2006MultivitaminMineralSOS028html.htm. Accessed March 30, 2007.
- 27. Huang HY, Caballero B, Chang S, et al. Multivitamin/mineral supplements and prevention of chronic disease. Evidence report technology assessment no. 139. (Prepared by The Johns Hopkins University Evidence-based Practice Center under Contract No. 290-02-0018.) AHRQ Publication No. 06-E012. Agency for Healthcare Research and Quality, Rockville, MD, May 2006.
- 28. Willett WC. Eat, Drink, and Be Healthy: The Harvard Medical School Guide to Healthy Eating. New York, NY: Simon & Schuster Source; 2001.
- 29. Heber D. What Color Is Your Diet? New York, NY: Regan Books; 2001.
- 30. Healy B. Vitamins and good sense. US News and World Report. March 4, 2007.
- 31. Cochrane MA on SJW: Linde K, Mulrow CD, Berner M, Egger M. St John's Wort for depression. Cochrane Database of Systematic Reviews. 1998;4. Art. No.: CD000448. DOI: 10.1002/14651858.CD000448. pub2.
- 32. Cochrane MA on Echinacea: Linde K, Barrett B, Wölkart K, Bauer R, Melchart D. Echinacea for preventing and treating the common cold. Cochrane Database of Systematic Reviews. 1999;1. Art. No.: CD000530. DOI: 10.1002/14651858.CD000530.pub2.
- 33. Cochrane MA on Saw Palmetto: Wilt T, Ishani A, Mac Donald R. Serenoa repens for benign prostatic hyperplasia. Cochrane Database of Systematic Reviews. 1999;1. Art. No.: CD001423. DOI: 10.1002/14651858.CD001423.
- 34. Watson WA, Litovitz TL, Rodgers GC, et al. 2004 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Available at: http://www.poison.org/prevent/documents/TESS%20Annual%20Report%202004.pdf. Accessed March 30, 2007.
- 35. Cardellina JH, II. Challenges and opportunities confronting the botanical dietary supplement industry. J Nat Prod. 2002;65:1073-1084.
- 36. Obama B. The Audacity of Hope: Thoughts on Reclaiming the American Dream. New York, NY: Crown Publishing Group; 2006.

Our *Aloe vera* is so much more than just a pretty face. If beauty is more than skin deep, the benefits for increased skin and immune same can definitely be said for the many system health, wound healing, antihealth and beauty benefits of Aloe vera. aging, anti-wrinkle, antioxidant protection, relief from the effects of That's because the results of using all natural Aloe vera from UV and radiation, not to Aloecorp go far beyond simply mention cardiovascular health, beautiful and healthy skin. digestive health and healthy blood sugar regulation.

After all, skin is the body's largest organ and protects it from harmful irritants and dangers. Aloe vera does the same for skin – and Aloecorp's patented ACTIValoe® does it even better. This exclusive Aloecorp product excels at providing Aloe's naturally-occurring

All of this means that if you're not already using Aloe vera from Aloecorp in your product applications yet,

you're missing out on many beautiful ALOECORP

To Request Scientific Review Papers: 800-458-ALOE info@aloecorp.com

opportunities.



LevensESSENTIE Gold ™

Natural Herbal * Holistically Blended Cold-processed * Advanced Fitness Formulas World's First Time-Release Shampoo With Rainforest Properties from Unesco's Langkawi Geopark Island



Cold - Processed Natural Organic

RESCUE BLEMISH AWAY



Cold - Processed Natural Organic

HERBAL CITRUS FRUIT EXFOLIANT

anveals Ref

Certified by The Vegan Society of U.K.

Pure Natural Herbal Skin, Body & Haircare

CELINCHER &

THE A SAIN TONES

ONROL URIN

For more information about Paul Penders Natural Herbal Skin, Body & Haircare please visit www.paulpenders.com. Exclusively made in Unesco's Langkawi Geopark with local ingredients

LONDON . PARIS . AMSTERDAM . MILAN . NEW YORK . SAN FRANCISCO . SHANGHAI TOKYO . DELHI . SYDNEY . SINGAPORE . HONG KONG
Plant Spirit Shamanism by Ross Heaven and Howard G. Charing. Rochester, VT: Destiny Books/Inner Traditions International; 2006. 250 pages. ISBN 13: 978-1-59477-118-7. \$16.95.

Some of those steeped in Western, reductionist, scientific rationalism, and current "biomedical" paradigms tend to believe that using medicinal plants for healing is comparable to using conventional pharmaceutical medicines. Those who agree acknowledge that plants contain bioactive constituents that interact with biological systems in ways that can have therapeutic benefits when used appropriately. In other words, botanical medicines are weak drugs, and under the correct circumstances, these drugs can affect the biological machine that is the body in ways that may prevent, alleviate, or even cure diseases or chronic dysfunctional states.

But there is nothing special, sacred, mysterious, or magical about this approach; the body is seen simply as a machine, and the right "monkey wrench," whether a botanical extract or the latest new product offered by the pharma/biotech industry, can be used to "fix" the machine. Today the use of botanical medicines in the context of biomedicine has been stripped of whatever spiritual, magical, ritual, or religious significance it may once have had, even though medicine itself is rooted in an earlier era in which medicine, magic, and ritual were inseparable and indispensable elements of an esoteric body of knowledge shared by witches (wise women), midwives, shamans, alchemists, herbalists, and other practitioners of traditional "healing arts."

If you are firmly immersed within a strictly biomedical paradigm and loath to acknowledge that healing has dimensions beyond the purely biomechanical, then not only will this book not speak to you, you will dismiss it as New Age claptrap. On the other hand, if you take a somewhat broader view of the art of healing, you may find much here that is of value. Authors Ross Heaven and Howard Charing acknowledge the validity of the biomedical paradigm-plants contain molecules that act like drugs-at the outset. They also point out that this perspective is impoverished, unless it is linked to the larger world of spirit, a more holistic realm in which plants are applied to the treatment of the mind, spirit, and the soul, as well as the body.

The authors do not dismiss the biodynamic properties of plants, but insist that true healing cannot take place without accepting and including these other facets of human experience and existence. In this respect, they advocate an approach to plant-based healing that is much closer to that of traditional healers. The latter usually recognize that plants and their constituents can have toxic or medicinal properties, but that is only a minor aspect of their healing properties. In their worldview, plants are intelligences. They have spirits, souls, and knowledge, just as we do. Also, much of traditional healing arts, like shamanism, is really about the mastery of techniques needed to communicate with plant spirits and enlist them as allies in healing practices.

This book is really a how-to guide for those who wish to understand, and perhaps learn to practice, some of the art of traditional, plant-spirit based healing. The introduction provides a lucid discussion of some of the issues and perspectives alluded to above, opening to the possibilities that lie beyond the strict, reductionist approach. It also explains the assumptions and "truths" that are familiar to traditional herbalists, shamans, and other traditional healers. One example is the concept of the doctrine of signatures and the notion that the healer and the patient must form a relationship with the spirit of the plant in order to invoke its healing power.

Each subsequent chapter then addresses an important aspect of traditional healing practices, inviting us, for the moment, to suspend disbelief and explore these more intuitive, distinctly non-scientific and yet still valid ways of understanding and applying a plant's healing powers. Shamanism and the role of the diet as an essential part of



shamanic training are addressed in the second chapter; the sacred hallucinogens, often integral to shamanic practices but by no means invariably, are discussed in chapter 3. Chapter 4 addresses the important concepts of soul-loss, spirit possession, and the roles of plant spirit medicines in treatment of both physical and mind/body illnesses attributed to soul-loss, possession, or loss of soul integrity. Chapters 5 and 6 discuss the ritual and healing significance of aromatic plants, perfumes, and healing herbal baths. The final chapter ends with a heartfelt plea to guard against the loss of this unique and irreplaceable knowledge, and the human cultures, habitats, and plant species that are the repositories of this worldview.

The book is not simply a dry academic discussion of these topics, although that alone would be intrinsically interesting. Instead, it provides cross-cultural perspectives on all aspects of plant-spirit based healing. The book draws on examples from the authors' own experiences in South America, Haiti, and other indigenous cultures, and delineates the common threads among beliefs and practices that characterize plant-spirit healing the world over. Through this, we begin to see that while these practices may find a unique expression within specific cultural contexts, ultimately they all are rooted in much more ancient bedrock: the common experiences of a humanity evolving and surviving on a dangerous planet in which the power of plants to heal and harm was recognized, respected, applied, and often made the difference between life and death for individuals and communities. If all this were not enough, the authors also provide practical advice on how to adopt and utilize these practices in everyday life. Here the reader will find specific instructions on everything from how to encounter and enlist one's plant spirit ally to how to prepare herbal perfumes and baths.

Two appendices are condensed to lists of both Peruvian and Caribbean herbals, in which the folk and scientific names of the most common or significant species are listed, along with their medicinal applications and magical attributes. Also unusual, and useful, these appendices list "analogs and alternatives," that is, plants with similar medicinal or magical properties that may be used as suitable substitutes in case the Peruvian or Caribbean remedies are not available. A third appendix provides reci-

pes and instructions for the use of various "hoodoo oils" that can be used for everything from speeding up healing to securing luck in love and business.

Not everyone will like or agree with everything in this book; I certainly didn't, but I did find it to be a useful introduction into aspects of botanical medicines and plant-based healing that are too often overlooked or dismissed in contemporary biomedically oriented texts on the topic. Whether you want to learn to practice plant-spirit medicine—or simply want to gain a better understanding of it—this book will be a useful addition to your botanical library.

—Dennis J. McKenna, PhD Senior Lecturer and Research Associate Center for Spirituality and Healing University of Minnesota Minneapolis, MN

Handbook of Cannabis Therapeutics: From Bench to Bedside, Ethan Russo and Franjo Grotenhermen (eds). New York: The Haworth Press; 2006. Paperback; 471 pages. ISBN-13: 978-0-7890-3097-9. \$39.95. Hardcover; ISBN 13: 978-0-7890-3097-2. \$69.95

Between 2001 and 2004, under Russo's editorship, Haworth Press published the Journal of Cannabis Therapeutics: Studies in Endogenous, Herbal, and Synthetic Cannabinoids, the journal of the International Association for Cannabis as Medicine. The journal's publication coincided with increased international interest in, and research on, the compounds found in cannabis (a.k.a. marijuana, hemp, ma, ganja, dagga, and many other names, in many languages; Cannabis spp. of the family Cannabaceae). Now-defunct, the journal provided a venue for scholarly peer-reviewed articles created by authors of many disciplines worldwide on a plant long neglected under withering political prohibition in the United States, and most everywhere else.

This book is an anthology of 20 key journal articles, organized into 5 sections: historical notes on cannabis' therapeutic uses, the herb's pharmacology and pharmacokinetics, endocannabinoids and cannabinoid receptors, demonstrated medical uses of cannabis, and side effects. The editors have updated 16 articles with brief reports on findings since 2004, demonstrating that cannabis research continues to progress, with new articles now seen regularly in less specialized publications. Russo, a neurologist—perhaps the best-known and prolific writer and lecturer on medicinal cannabis today—provides 15 updates in addition to authoring or contributing to 5 chapters. Grotenhermen—whose many works on therapeutic uses, pharmacology, and toxicology of cannabis and cannabinoids have mostly appeared in German—updates his own chapter on cannabinoids' clinical pharmacodynamics in 1 of the 2 chapters he contributes to this book.

Following a brief foreword by pre-eminent Israeli researcher, Rapahael Mechoulam, in which cannabis' current position is elegantly summarized, the handbook opens with a piece by Indalecio Lozano (affiliated with the University of Granada in Spain) on therapeutic uses of cannabis known to classical era Arab physicians. All of the uses subsequently investigated have been found to have some evidentiary basis, while others remain uninvestigated. Additionally, none of the seventh century CE and later Arabic uses seem unreasonable in terms of what is known today of cannabis' attributes. For example, Arab sources describe using crushed hempseeds to dry excess moisture in the ear. While translated instructions at such a temporal distance are not always clear, hempseed oil, rich with essential fatty acids, seems as likely a topical remedy for swimmer's ear as others, although no one has yet reported studying this application.

The book contains very detailed, substantive articles on use of cannabis to counter debilitating effects of multiple sclerosis in women; treat addiction to crack cocaine (from coca, Erythroxylum perveilli, Erythroxylaceae); and stimulate the appetite after cancer chemotherapy, in hyperemesis gravidarum, and in individuals with HIV and AIDS. However, the title is still a bit wishful, partially because all of the articles together make it clear that the true scope of cannabis' therapeutic potential has barely been sketched. Until cannabis research is brought completely out of the political shadows and no longer limited to a few select institutions in the United States, cannabis medications are unlikely to be at the bedsides of the patients it would benefit. Still, this book should be in clinicians' libraries and studied for its glimpses of the therapeutic possibilities of this extraordinarily versatile and infinitely variable plant, as well as the natural and synthetic compounds which may be derived from it.

This handbook also places a refreshing emphasis, wherever appropriate, on problems affecting women's health. As is evident in many chapters, marijuana folk medicine has played a central role for centuries worldwide in women's unique health concerns, from menstrual cramps to menopausal mood swings. Patent medicines made with cannabis, before their prohibition in the United States in 1937, were often used for women's problems, including post-partum depression and "hysteria." The ban on marijuana medicine, not inconsequently, has removed a valuable substance from women's common knowledge and use in childbirth and nursing, as well as in other events. Simultaneously, conventional medicine seemed to become impatient with such matters, deeming them of little consequence unless severe enough to require vigorous medical measures.

In addition to being an informational resource, including an extensive index and well-prepared references, tables, and figures in each chapter, this handbook is, editorially, an unabashed work of advocacy. Grotenhermen, in his introduction, credits medical patients around the world for putting cannabis back on the scientific agenda through courageous activism. Some of these patients—a tiny group of American long-time legal medical cannabis users—are discussed in the book's final chapter.

Chapters such as Russo's wide-ranging vision of the future of cannabis and cannabinoid therapeutics, Ester Fride's chapter on the role of endocannabi-



noids as a nursing-trigger for infants, and nurse Mary Lynn Mathre's compassionate discussion of harm reduction, begin to clarify the handbook's agenda, which points toward specific research needs. Every chapter contains food for thought, although the potential health effects of hempseed as food are unmentioned, except rather misleadingly in one purely historical piece: an inconclusive linguistic examination of a brief mention of hempseed by an 11th century CE Byzantine physician. As for the essential fatty acids, as well as protein and other nutrients in hempseed, a dearth of relevant research may be laid at the doorstep of American economic policies. Still, it is unfortunate the handbook doesn't include an article on hempseed's potential contributions to health through dietary consumption.

More exciting than many reference works, *Handbook of Cannabis Therapeutics* leaves one anticipating rapid advances on many fronts in cannabis research such as England, Canada, Israel, and Germany, if not in the United States. Fortunately, pain relief, appetite, addiction, and anti-spasticity and anticonvulsant action are just a few areas where research is well-launched. Although this handbook alone cannot fill the regrettable lack of a journal devoted specifically to cannabis, its overall presentation is handsome, conveniently sized, wellorganized, and very readable.

—Mariann Garner-Wizard HerbClip Writer Austin, Texas

Herbal Products: Toxicology and Clinical Pharmacology, 2nd edition, by Timothy Tracy and Richard Kingston (eds). Springer-Verlag New York: LLC; 2006. Paperback; 288 pages. ISBN: 978-159-745-3837. \$99.

This title is a completely new update of its predecessor entitled *Toxicology and Clinical Pharmacology of Herbal Products* by Melanie Johns Cupp (Humana Press, 2000). This new edition provides information about the efficacy and safety of 17 selected herbal ingredients. *Herbal Products* includes recent information pertaining to the therapeutic application and safety of the following herbs:

Ephedra (Ma Huang/Ephedra sinica, Ephedraceae) (curious, since this herb has been banned as a dietary supplement ingredient in the United States), kava (Piper methysticum, Piperaceae), ginkgo (Ginkgo biloba, Ginkgoaceae), valerian (Valeriana officinalis, Valerianaceae), St. John's wort (Hypericum perforatum, Clusiaceae), echinacea (Echinacea spp., Asteraceae), feverfew (Tanacetum parthenium, Asteraceae), garlic (Allium sativum, Liliaceae), ginger (Zingiber officinale, Zingiberaceae), saw palmetto (Serenoa repens, Arecaceae), Asian ginseng (Panax ginseng, Araliaceae), cranberry (Vaccinium macrocarpon, Ericaceae), hawthorn (Crataegus oxyacantha, Rosaceae), evening primrose (Oenothera spp., Onagraceae), bitter orange (Citrus aurantium, Rutaceae), chaste berry (Vitex agnus-castus, Verbenaceae), and bilberry (Vaccinium myrtillus, Ericaceae). This is the order the herbs are discussed in the book, with no rational explanation for such.

Eleven of the original herbal monographs included in the first edition are absent in the second: chamomile (Matricaria recutita, Asteraceae), creosote bush (aka chaparral, Larrea tridentata, Zygophyllaceae), borage (Borago officinalis, Boraginaceae), calamus (Acorus calamus, Acoraceae), coltsfoot (Tussilago farfara, Asteraceae), comfrey (Symphytum officinale, Boraginaceae), skullcap (Scutellaria spp., Lamiaceae), licorice (Glycyrrhiza glabra, Fabaceae), pokeweed (Phytolacca spp., Phytolaccaceae), sassafras (Sassafras albidum, Lauraceae), aloe (Aloe spp., Liliaceae), cascara sagrada (Frangula purshiana, Rhamnaceae), senna (Cassia senna, Fabaceae), cat's claw (Uncaria tomentosa, Rubiaceae), and dong quai (Angelica sinensis, Apiaceae). The authors note that the new edition included herbs which had more evidence-based studies to support their use.

With the exception of Steven Karch, MD, (who authored the chapter on Ephedra in both editions), the list of contributors is new, including the editors: Timothy Tracy, PhD, of the University of Minnesota-Minneapolis, and Richard Kingston, PharmD, a widely acknowledged expert on herb safety and co-founder of Safety-Call International. This company provides safety information for consumers responding to mainstream household products, OTC drugs, and dietary supplements.

The information contained in each herbal monograph is based principally on original studies about the efficacy and potential toxicity of these herbs published in peer-



reviewed journals, and highlighting doubleblind controlled studies whenever possible. Systematic reviews, meta-analyses, and other reviews are also included.

Each chapter consists of an introduction, which includes a description of the plant and pertinent historical data, and contains these sections: Commonly Promoted Uses, Sources and Chemical Composition of the Plant, and Description of the Types and Quality Assessment, which assess various herbal products available in the market. There is also a section titled Pharmacological/Toxicological Effects for each herb, which provides an explanation of the herb's mode of action, as well as its possible clinical effects (if known) in humans.

The editors mention that adverse reactions to herbal products seem to be uncommon compared to those reported for prescription medications. However, various exceptions exist that are sometimes erroneously attributed to causes unrelated to the herb, due to the widespread notion that all herbs are safe because they are "natural."

One of the salient features of the herbal monographs covered in this book includes the information presented in Chapters 1 and 2, which show that the use of certain herbs outside the context of their original application in traditional healing practices may lead to health problems.

Chapter 1 includes information on the alkaloids produced by ma huang (ephedra) and their traditional therapeutic use (in the herb) in the treatment of respiratory conditions by Asian traditional medicine for thousands of years, with practically no problem with toxicity.

In conventional or mainstream medicine, ephedrine, one of the alkaloids obtained from the plant, was applied intravenously

to patients for the treatment of hypotension caused by spinal anesthesia. Ephedrine was also used to treat heart blockage and narcolepsy until synthetic pharmaceuticals replaced its use in modern medicine.

Ephedrine has been used for many years in some countries in Europe in order to promote weight loss in morbidly obese patients. In the United States, ephedrine was a common ingredient in various weight loss supplements until its ban (and the ban of all its related isomers, e.g., pseudoephedrine) by the Food and Drug Administration (FDA) in 2004, due to the abusive use of the herb ephedra and its extracts (including its naturally-occurring ephedrine and related alkaloids) and its correlated adverse effects in some individuals.

Chapter 2 describes kava, a plant that has been traditionally used in many islands of the South Pacific to prepare a relaxing drink used in important ceremonies as an "icebreaker," promoting congeniality among participants. Products containing kava extracts had been used for many years in Europe, usually with success, for the treatment of anxiety prior to the restrictions or bans placed on its use by many countries (not including the United States, where it is still available) due to various reports of liver problems associated-but not directly correlated-with the herb and/ or its combination with alcohol and certain pharmaceutical drugs.

Some studies indicate that the commercial products made from kava are standardized to only one or two of its many active ingredients. This modifies the effects on the body, compared to the original kava drink, which contains diverse active ingredients which usually do not cause health problems, aside from skin eruptions, when taken in very large doses over long periods of time.

Consistent with its title, the focus of this book is on safety and toxicology aspects of the included herbs. This edition provides updated information regarding the safety, including possible drug-herb interactions, of various herbal products currently in use. It will surely become a welcome addition to the library of various healthcare providers including pharmacists, physicians, nurses, herbalists, and phytotherapists.

—Armando González-Stuart, PhD Herbal Research Coordinator, University of Texas, Cooperative Pharmacy Program, El Paso, TX

The Vegetarian Solution by Stewart Rose. Summertown, Tennessee: Healthy Living Publications; 2007. Paperback, 158 pages. ISNB-13: 978-1-57067-205-7. \$12.95.

Rose stated that he wrote this book at the encouragement of participants in numerous classes and speeches he has given in his capacity as vice-president of Vegetarians of Washington state. These audiences included those who want to become vegetarians and don't know how to do it, and those who have already adopted the principles of a vegetarian diet and want to learn more. The book was written for both audiences.

The preface states that the book will do the following: identify health-related benefits of the vegetarian diet, show a relationship between the environment and world hunger and the adoption of a vegetarian diet, show how to fit a vegetarian diet into anyone's routine, and identify the names of vegetarians—living and dead—to show the diversity of those who have adopted this diet. The book covers each of these topics in varying levels of detail. The book is wellwritten, in a breezy style, which keeps the reader's attention so that it can be read in one sitting. All chapters are well-referenced, with the citations listed at the end.

To his credit Rose identified the new thinking regarding vegetarian proteins, in that it is not necessary to combine two protein sources to obtain optimal protein (i.e., essential amino acids) for the body. Also, he correctly describes the acidproducing side effects of eating meats, and their effect on all bodily functions including bone health.

On the other hand, the book has several weaknesses. First, the book is trying to be too many things to too many people: it is designed for both those who follow the vegetarian diet and those who want to. For those who already follow the diet, much of what is found in here is known to them, but

New Book Profiles

A Whole Foods Primer: A Comprehensive, Instructive, and Enlightening Guide to the World of Whole Foods. Beatrice Tram Hunter. Laguna Beach, CA: Basic Health Publications; 2006. 188 pages, softcover, references, index. \$15.95. ISBN 1-59120-086-5.

A Whole Foods Primer divides whole foods into 5 groups, with a chapter for each: vegetables, fruits, whole grains, nuts and seeds, and animal and vegetable protein foods. Chapters discuss the nutrients, functions, benefits, and roles both in general and for particularly valuable items within each group, as well as providing suggestions for selection, storage, and use. The author encourages a rational and practical approach to incorporating whole foods into the diet to optimize health. The Herb Society of America's Essential Guide to Growing and Cooking with Herbs. Katherine K. Schlosser. Baton Rouge, LA: Louisiana State University Press; 2007. 349 pages, hardcover, b&w illustrations, recipes, references, bibliography, general and recipe indexes. \$29.95. ISBN 978-0-8071-3255-5.

The book has 3 distinct sections. The first profiles each of the 63 herbs in the Culinary Garden of the National Herb Garden in Washington, DC, with information on classification, origin, history, growing requirements, and suggestions for use in cooking. The second is made up of more than 200 unique and creative recipes, arranged by type of dish and contributed by Herb Society of America members. The book closes with descriptions and plant lists for each of the gardens within the National Herb Garden. Shroom: A Cultural History of the Magic Mushroom. Andy Letcher. New York, NY: Ecco; 2007. 360 pages, hardcover, b&w photos and illustrations, appendix, notes, references, index. \$25.95. ISBN 0-06-082828-5.

Shroom examines the history of human encounters with psychoactive mushrooms and their cultural impact. The first section discusses species characteristics, ancient representations and references, and case reports of accidental ingestion through the ages. The second examines the lore on the genus *Amanita*, and the third and primary focus of the book is on the genus *Psilocybe* and its rise in the modern subculture. A primary concern of the author is the critical analysis of the popular conception that intentional use of hallucinogenic mushrooms is an ancient practice.

perhaps in not as much detail as provided herein. Yes, epidemiological data suggest that vegetarians are healthier, have less of a risk of chronic diseases of aging, such as cardiovascular disease, type-2 diabetes, and obesity; but I don't know how much more people want to know than that. This book provides much more.

For those who aren't a vegetarian and want to be, the food diagram and list of foods to eat are inadequate. The sole chapter on the subject (Chapter 2) only devotes 9 pages to how to follow a vegetarian diet. There is a table showing how many times a day one should eat legumes, vegetables, and grains, but no meal plans or recipes for the novice. Most individuals don't even know what legumes are let alone how to cook them.

Another issue is that the science cited in



support of following a vegetarian diet is not always from studies of individuals following such a diet, but rather from those who are eating a low-fat, heart-healthy diet rich in fruits and vegetables. Specifically, the studies from Dean Ornish, MD, and the data from the Harvard School of Public Health are not conducted on vegetarians. What Rose really supports in most of his literature citations is that eating a sensible diet, containing some lean meats, along with whole grains and fruits and vegetables, can be just as good at reducing the risk of chronic disease as following a vegetarian diet (and much less restrictive).

Some statements are misleading or illsupported. Yes, it is sexy to say toxins buildup in meats, so they should be avoided. However, the evidence to date is not there. Rose also suggests that if Americans were to all become vegetarians then there would be adequate food to feed the world. This is a lofty statement with little scientific support—at least none provided by this author.

In one table (adopted from Keith Akers's book, *A Vegetarian Source Book* [Vegetarian Press 1993]), Rose lists spinach as being 49% protein, while lentils were only at 29% protein. This could certainly leave a novice vegetarian with the false sense that spinach is rich in protein. Spinach has 30 calories per serving, of which 50% is protein, or about 3 grams of low biological value protein. Lentils, on the other hand, contain 9 grams of high-quality protein in the same

serving size, despite having a lower percentage of protein. Thus, despite having a lower percentage of protein, the contribution of a single serving is greater with the lentils. Another table lists foods based on 100 calories and their corresponding calcium content. The first foods listed are bok choy and collard greens, which are mostly water, so one would have to eat bucketfuls to get adequate calcium.

So who should buy this book? I cannot recommend it to someone who is already following a vegetarian diet. Most of these individuals already figured out when they stopped eating meat, and sometimes dairy, that they gained many health advantages. Seasoned vegetarians would not glean any new recipes or newly-identified protein sources from this book. Additionally, for those wishing to start following a vegetarian diet, this is not the primer they need. Omitting meat, and maybe even dairy and eggs, from the diet leaves serious nutrient deficiencies that need to be carefully made up from vegetarian sources. There is not enough information on how to start a vegetarian diet to assure that all nutrient needs are met. However, I would recommend this book to someone who is toying with the idea of introducing more vegetarian-based proteins into their diet. For those individuals, this book is an excellent place to start.

—Stacey J. Bell, DSc, RD Research & Development, Twinlab Grand Rapids, Michigan

Narrative Medicine: The Use of History and Story in the Healing Process. Lewis Mehl-Madrona. Rochester, VT: Bear & Co.; 2007. 324 pages, softcover, notes. \$20.00. ISBN 1-59143-065-8.

Explores the role of storytelling in Native American cultural and healing traditions, arguing for a holistic view of illness as occurring in the context of a person's personal and cultural history and requiring an examination of that history in order to heal. Provides examples of how this concept can be applied for healing in general and for asthma, mental illness, cancer, and diabetes specifically.

Mayo Clinic Book of Alternative Medicine. B. Bauer, C. Frye, K. Wallevand, R. Dietman, and K. Kaufman, eds. New York, NY: Time Inc.; 2007. 192 pages, hardcover, color photos, additional resources list, index. \$24.95. ISBN 1-933405-92-9.

This colorful and lavishly designed volume is an accessible basic reference directed at the layperson. The book covers a wide array of topics, including herbs and supplements, mind-body techniques, energy therapies, and hands-on therapies. Part 1 introduces the concepts and discusses the impact of lifestyle choices on health. Part 2 is a guide to therapies organized by type, with entries for each therapy including a brief explanation of the therapy, a global recommendation on safety and effectiveness, and a synopsis of research results. Part 3 provides information on both conventional and alternative treatments organized by condition.

The Homeopathic Revolution: Why Famous People and Cultural Heroes Choose Homeopathy. Dana Ullman. Berkeley, CA: North Atlantic Books; 2007. 387 pages, softcover, references, notes, index. \$19.95. ISBN 1-55643-671-8.

The author begins by discussing the basic assumptions underlying homeopathy and his proposals as to why it provides benefits, followed by an account of the resistance and retaliation encountered by homeopathic practitioners in America, Europe, and Asia. The remainder of the book catalogues the support and use of homeopathy by prominent people arranged by profession, providing the author's argument for its acceptability and popularity through the past several hundred years by a wide cross-section of humanity.

In Memoriam



David Maybury-Lewis 1929–2007

David Maybury-Lewis, PhD, a protector of indigenous cultures, died at 78 on December 2, 2007.¹ A professor at Harvard University, he was most well-known for his work with Cultural Survival, a human rights organization founded in 1972 by him and his wife, Pia Maybury-Lewis.² Dr. Maybury-Lewis said he started the organization because of "the struggles the Xavante [people] in Central Brazil faced to protect their lands and culture."³

Dr. Maybury-Lewis once described the Xavante as one of the most aggressively hostile tribes of Mato Grosso, Brazil.² Despite this, he and his wife and two children ventured into the Mato Grosso area for fieldwork where they became aware of many injustices against the Xavante. Although anthropologists normally observe rather than help the people they study, Dr. Maybury-Lewis decided to "go beyond just studying people to actually attempting to do something to change the conditions in which they lived," said Bret Gustafson, a former student of Dr. Maybury-Lewis, in a Cultural Survival tribute.² "Anyone who had basic human decency working in Brazil at the time would have realized the incredible injustices that were going on toward native peoples, but a lot of people in his position would not have acted."

Dr. Maybury-Lewis was born in 1929 in Hyderabad, formerly of India and now a part of Pakistan.¹ He studied at Cambridge University and in 1960 earned a doctorate in anthropology from Oxford University. He became an assistant professor of anthropology at Harvard in 1961 and a professor in 1969. He also chaired Harvard's anthropology department from 1973 to 1981 and achieved an emeritus professorship in 2004.

Wade Davis, PhD, a previous graduate student of Dr. Maybury-Lewis, described him in a passage in his book *Light at the Edge* of the World: A Journey Through the Realm of Vanishing Cultures. Dr. Davis said he "fell into the orbit" of Dr. Maybury-Lewis and that he was "a man of searing intelligence, whose formal eloquence masked a deeply human spirit."⁴ Dr. Davis further illuminated Dr. Maybury-Lewis by referring to him as "one of the great Americanists, a brilliant scholar."

Ellen Lutz, current president of Cultural Survival, describes Dr. Maybury-Lewis in an issue of *Cultural Survival Quarterly* as someone who "embodies what it means to be both a great anthropologist and a great indigenous rights advocate: he is courageous and humble; a committed learner and a dedicated teacher; intensely curious about human diversity and passionate about protecting it."⁵ She also stated in this article that many of his students referred to him as "the conscience of anthropology" and members of Cultural Survival referred to him as "a saint."

Dr. Maybury-Lewis is survived by his wife Pia Maybury-Lewis, his two sons Anthony and Biorn, his two sisters Patricia and Jean McLaren, and his four grandchildren.¹ HG

-Kelly E. Saxton

References

- 1. Pearce J. David Maybury-Lewis, who studied native tribes, dies at 78. *New York Times.* December 14, 2007;A0:39.
- In Memoriam: David Maybury-Lewis, 1929–2007. Cultural Survival Article; December 6, 2007. Available at http://www.cs.org/publications/csarticles/csarticles-article.cfm?id=23. Accessed January 25, 2008.
- 3. Maybury-Lewis D. Xavante archive documents vital culture. *Cultural Survival Quarterly*. March 31, 2003: 27.1. Available at http://www.cs.org/publications/csq/csq-article.cfm?id=1629. Accessed January 25, 2008.
- Davis W. Light at the Edge of the World: A Journey Through the Realm of Vanishing Cultures. Vancouver, British Columbia, Canada: Douglas & McIntyre Ltd; 2001.
- Lutz E. Cultural Survival: A human rights organization. *Cultural Survival Quarterly*. June 15, 2004: 28.2. Available at http://www.cs.org/publications/csq/csq-article.cfm?id=1758&highlight=David%20 Maybury-Lewis. Accessed January 25, 2008.

In Memoriam



Ann Yates 1948–2007

Ann Yates, a pioneering businesswoman who opened a successful and influential natural products store and alternative health center in Knoxville, Tennessee, died on October 30, 2007.^{1,2} She was 59 years old.

Yates grew up on a farm in Springfield, Tennessee, where she developed an interest in and respect for organics and natural products.¹ Her passion for natural products and natural healing later intensified when mainstream medicine failed to relieve her infant son's severe allergies.

In 1977, Yates launched the natural foods store Nature's Pantry. This ever-expanding and successful store ultimately became the largest natural products store in Knoxville.

"Ann was a real trailblazer in our industry, opening up Nature's Pantry over 30 years ago in a community with a fast food restaurant on every corner," said Bill Arthur, owner of Nutraceutical Solutions Consulting and Yates' friend for nearly 15 years (email, February 20, 2008). "Knoxville was certainly not the poster city for alternative health and healthy living in those days. But Ann really turned that community around and her influence on people's lives was awe-inspiring."

In 2002, Yates opened Well By Nature, the city's first holistic wellness center.² Located next to Nature's Pantry, the wellness center offers a range of services including acupuncture, massage therapy, yoga classes, and other natural health options and resources.

"Annie's high standards in business and all parts of her life were reflected in Nature's Pantry and Well by Nature," said Lynda LeMole, executive director of United Plant Savers and a friend of Yates for many years (e-mail, March 7, 2008). "She believed in the importance of the human element in business, how it was part of the bottom line. She made a contribution to the green business community by setting an example of what a good business can bring to people and the planet."

During her many years in the natural products business, Yates was a frequent attendee of industry trade shows. It was at such venues that many members of the industry, including LeMole, became familiar with Yates.

"We were immediate friends and sisters, sharing tales of our lives as natural business women, mothers and seekers of truth, environmental and social justice, and health," said LeMole. "Because we were early woman-eers in the industry, we were often on the same panels about women in business and learning in the same seminars. Also, we both loved to dance, so we would work hard all day at the tradeshows and play hard at night on the dance floor! Wow, could she dance!"

Mark Blumenthal, founder and executive director of the American Botanical Council, also considered Yates a personal friend and a favorite dance partner at industry conventions. According to Blumenthal, "Ann radiated a profound sense of love and generosity. A strongly spiritual person, she embodied the essence of what the natural products industry is really all about: the unconditional love and deep caring for her family, friends, and

members of her community. She was a beacon of light in Knoxville and Central Tennessee, pioneering good nutrition, natural health awareness, and spiritual growth for thousands of customers for over 25 years. Her magnetic personality drew people to her and she developed a strong network of close friends and admirers throughout the natural products community—all of whom are mourning the hole that her passing has created in our lives."²

Yates was active in both regional and national trade associations. She served on the board of the Southeast Natural Products Association from 1993 to 2001 and acted as the organization's president from 1999-2000.¹

"Aside from all of her civic, industry, and business accomplishments, Ann was one of the most caring, loving, giving, and motivational friends anyone could ever ask for," said Arthur. "It's hard to believe that she is gone in the physical, but her memory and her legacy lies squarely in the center of my heart."

"If you were fortunate enough to be her friend, her legacy is of love, believing in yourself, and walking the higher path," said LeMole. "As a female entrepreneur in the natural industry, her legacy is that a woman can build a business, raise a family, create positive change in one's community, and bring health into the world. And all this can be done with love in your heart, a sparkling smile, and a laugh that we will never forget."

Ann Yates is survived by her daughter Meredith and son Ben, both of whom live in Knoxville and will continue to be involved in running Nature's Pantry and Well By Nature. She is also survived by her father Harold Reeves of Springfield, Tennessee.² HG

-Courtney Cavaliere

References

- Harrington C. Business leader dies at 59. *Knoxville News Sentinel*. November 6, 2007. Available at: http://www.knoxnews.com/ news/2007/nov/06/business-leader-dies-at-59/. Accessed February 6, 2008.
- 2. Ann Yates, 1948-2007. Natural Foods Merchandiser. December 2007:17.

Calendar

2008

May 6-8: DCAT's Nutrition and Health Forum 2008. Palm Springs, CA. The Drug, Chemical, and Associated Technologies Association (DCAT) presents a program on how the new dietary supplement Good Manufacturing Practices (GMPs) will affect the natural products industry. Information will be provided by dietary supplement industry experts including regulatory bodies, manufacturers, and suppliers. The program topics will include: FDA highlights of the new rule and an update on global supply issues, the FTC's role in regulating dietary supplement advertising (accompanied by a handbook for all participants), roundtables on market advantages and applying the new rules for manufacturers, adverse event reporting requirements, trends in manufacturing methods, and more. For more information contact DCAT at 800-640-DCAT or visit the Web site: www.dcat.org.

May 8: The Workshop: CRN's Day of Science. Arlington, VA. The Ritz-Carlton, Pentagon City (just outside of Washington, DC) is the location of the CRN-hosted allday scientific symposium on dietary supplements and dietary supplement ingredients. This event gives scientists a chance to meet with peers inside and outside the industry in an intimate classroom-style setting. The theme for this year's event is Dietary Supplements and Integrative Medicine: Beyond Health Maintenance. The day will be split into three separate sections, each covering important yet distinct areas within this theme, including: Dietary Supplements and Disease Management; Continuing on the Paradigm of Prevention; and Ensuring the Integrity of Raw Materials. For more information please visit the Web site: www.crnusa. org/TheWorkshop/.

May 26-30: The 1st International Symposium on Woody Ornamentals of the Temperate Zone. Pruhonice, Czech Republic. This symposium will be held at the Congress Centre of the Silva Tarouca Research Institute for Landscape and Ornamental Gardening in Pruhonice. Topics will include assessment of woody ornamentals, evaluation of the gene pools and new prospective taxa, breeding of woody ornaments, propagation and cultivation methods for woody ornamentals, preservation of rare and endangered taxa, and woody ornamentals in the human environment. For more information call +420 296 528 336 or visit the Web site: www.woodyornamentals.cz.

May 30–June 1: World Tea Expo. Las Vegas, NV. The World Tea Expo is the largest trade-only conference in the world showcasing tea and related products. The goal is to add value to the rapidly growing tea industry by providing a true global marketplace for commerce and education. World Tea Expo is committed to displaying the most comprehensive products and resources necessary to serve the tea industry and facilitate its growth. American Botanical Council Founder and Executive Director Mark Blumenthal is also a guest speaker for this event. For more information, to register, or to reserve exhibit space, visit the Web site: www. worldteaexpo.com.

May 31-June 2: Medicines from the Earth Herb Symposium. Black Mountain, NC. Traditional and scientific approaches to botanical medicine are offered in the Blue Ridge Mountains of North Carolina. This symposium will include the latest information on the treatment of chronic disease with botanical medicine and herb walks on 1,500 acres of woodlands. Confirmed speakers include Rosita Arvigo; Paul Bergner; Mary Bove, ND; Amanda McQuade Crawford; Walter Crinnion, ND; Ryan Drum, PhD; Doug Elliott; Cascade Anderson Geller; Chris Kilham; Kenneth Proefrock, ND; CoreyPine Shane; Jill Stansbury, ND; Martin Wall; Decker Weiss, ND; and David Winston. For more information, visit the Web site: www. botanicalmedicine.org/conferences/index. htm.

June 1-5: 49th Annual Meeting of the Society for Economic Botany. Duke University, Durham, NC. This day-long symposium will focus on the diverse roles gardens currently play in botanical education. The integration of the garden into classes and programs will be explored to help preserve the future of botanical knowledge and research. Another exploration will involve how to better communicate the importance of plants in all aspects of human activities to a wide range of audiences from university and K-12 students to life-long learners. The deadline for registering online is May 31, 2008. For more information visit the Web site: www.SEB2008.com.

June 12–15: Food As Medicine: Professional Nutrition Training Program. Baltimore, MD. Located at the Marriott Waterfront Hotel, this training program provides the most recent science-based nutrition education. It is intended to give health professionals the knowledge, confidence, compassion, and skills required to integrate food as medicine into their clinical practices. The keynote speaker is Mark Hyman, MD, the bestselling author of *Ultrametabolism: The Simple Plan for Automatic Weight Loss* (Simon & Schuster Inc. Atria 2008). For more information visit the Web site: www.cmbm.org.

June 18–19: Healthy Foods International Exposition and Conference. Dallas, Texas. Created by *Supermarket News*, a national weekly trade magazine, and New Hope Natural Media, this exposition and conference aims to help manufacturers of healthy products network with supermarket buyers, decision makers, managers, and marketers interested in taking on new products. For more information visit the Web site: www.healthyfoodsintl.com/hfi2008/public/ enter.aspx and to register, e-mail tradeshows@newhope.com.

June 26-28: EIMC Endobiogénie Clinical Phytotherapy Seminar. Pocatello, ID. Endobiogénie is an integrative approach to medicine that blends western medicine with phytotherapeutic, dietary, lifestyle, and other applications of therapeutic agents to address physiological imbalances that are mainly influenced by the endocrine system. Taking place at the AmeriTel Inn, this seminar covers the Endobiogenic approach to neurology, migraine headaches, arterial and cerebral risk factors, circulatory insufficiency, herb profiles, and patient examples. Speakers include Jean Claude Lapraz, MD, and Jean Bokelmann, MD. Continuing education units (CEUs) are offered through Idaho State University and there are special rates for students and groups of 10 or more. For more information call 877-470-8400 or visit the Web site: www.eimcenter.com/Seminars. html

June 26-28: Natural Products Expo, Asia. Hong Kong Convention Centre, Hong Kong. This expo has been recognized as the largest natural and organic trade show in Asia-Pacific. Throughout the three-day show, attendees can meet with over 300 companies from 32 countries/regions, exploring the latest in natural, organic, and ecofriendly products from raw ingredients to finished products. Categories include foods and beverages, supplements, natural personal care items, pet products, healthcare products, natural living items, herbs and Traditional Chinese Medicines (TCM), and industryrelated services and machinery. For more information visit the Web site: www.naturalproductsasia.com.

July 17-19: Natural MarketPlace 2008. Las Vegas, NV. The 71st Natural Products Association convention and trade show will be held at the Sands Expo Convention Center and Venetian Resort Hotel. The conference begins on July 17 and exhibits are open July 18-19. Over 7,500 natural product retailers, suppliers, and other professionals routinely attend this networking event, and this year there are almost 600 booths of natural products and services expected on the trade show floor. There are also educational programs, special events, and activities. For more information about registration and trade show activities call 202 223-0101 or visit the Web site: www.naturalproductsassoc.org/tradeshow.

July 23–25: NBJ Newport Summit. Dana Point, CA. Taking place at the St. Regis Resort, Monarch Beach, this event will showcase many speakers and sessions that highlight the theme: Nutrition Industry 2015. Seminar topics include navigating an industry effected by recession, sustainability, the benefits of companies "going green," and more. There are also activities such as morning golf and the 11th Annual NBJ Summit Regatta, a 3-hour sailboat race along the California coast. An awards dinner will feature the NBJ Business Achievement Award Recipients as well as the Regatta winner's presentation. For more information visit the Web site: www.newportsummit.com.



In this department of *HerbalGram*, we list resources such as publications, organizations, seminars, and networking for our readers. A listing in this section does not constitute any endorsement or approval by *HerbalGram*, ABC, or its Advisory Board.

The Research Institute for Fragrance Materials (RIFM) database is now open to personal care companies and businesses involved in fragrances as well as the Flavor and Extract Manufacturers Association (FEMA). Those who fall into these categories do not need to be members to access the database. The database was established in 1983 to capture and update scientific information of the fragrance industry. It contains informaterials, 53,000 references, and 111,000 human health and environmental studies. More information about RIFM and the database is available at www.rifm.org.

The European Federation for Associations of Health Product Manufacturers (EHPM) presents the Quality Guide for Food Supplements: Guide for the Manufacture of Safe and Consistent Supplements across the EU. This guide is intended to acquaint manufacturers with mandatory requirements (with the use of examples) to help maintain the safe and consistent production of supplements. There are also recommended requirements to further assist manufacturers. The EHPM's goal is to aid the creation of a regulatory standard for food supplements throughout the EU. The book's PDF is available at http://www.ehpm.org/pdfs/ 8990EHPM%20Report%20for%20web.pdf.

The Diabetes Educator is a peer-reviewed journal that provides information about the management of diabetes, published by Sage Publications. The journal publishes original articles that involve patient care and education, clinical practice, research, and the multidisciplinary profession of diabetes education involving nurses, dietitians, physicians, pharmacists, mental health professionals, podiatrists, and exercise physiologists. To receive access to this journal online and in print, one must become a member of the American Association of Diabetes Educators (AADE); however, a free sample of the issue can be obtained by visiting http://tde. sagepub.com. More information about the journal or the AADE can be found at the AADE Web site: www.diabeteseducator.org or obtained by e-mailing support@diabeteseducators.com.

Mamaherb.comTM What really Works (www.mamaherb.com) is a health Web site managed solely by its online members. Its mission is to find out what natural remedies work. By visiting this site, one can click on various ailments and see suggestions for how to combat them from others who have tried various methods with positive results. There are also short surveys to input results of one's own experiences with each remedy. Nonregistered members can view all treatments and ingredients in full, comment on them, and receive automatic updates on treatments added to conditions in which they have an interest. Registered users can contribute to the treatments and ingredients, communicate with other members, and communicate directly with those who post treatments. Registration is free. More information about Mamaherb.com can be obtained by e-mailing thepeople@mamaherb.com or by contacting Elad Daniel, CEO, at elad@mamaherb.com or by visiting the Web site.

A Practical Guide to Licensing Herbal Medicinal Products, a handbook supported by the UK's Medicines and Healthcare products Regulatory Agency (MHRA), will be available May 2008 from Pharmaceutical Press. This book will provide guidance on how to legally market herbal medicinal products in the UK. The Traditional Herbal Medicinal Product Directive (THMPD), implemented by the UK in 2005, allows herbal products to be 'registered' under medicines law. By 2011, every herbal product that is judged as medicinal by the MHRA will require a registration. (This judgment will be made either on the basis of labeled claims or if the agency judges the herb not to have food uses.) Containing all legal guidelines and forms, as well as instructions on how to fill out all relevant applications, this resource can help obtain that registration and guide the manufacturer to necessary quality standards and other requirements. More information on the handbook is available at sales_americas@pharmpress.com.

Weaving Herbs into Your Nursing PracticeTM, a 2-day, 10-hour weekend program, will take place April 26–27, 2008, August 7–8, 2008, and October 25–26, 2008. This program is for nurses, herbalists, and anyone else who wants to learn how to integrate herbs into nursing. The cost is \$150 per person and food will be available for purchase. In April and October it will be located at Harmony Hills Retreat Center in the Catskill Mountains of East Meredith, NY. The August program will take place in Gold Petals Barn, Cooperstown, NY. Accommodations are available, as well as 70 acres of land serviceable for camping, at additional costs. More information is available by calling Marguerite Uhlmann-Bower at 607-278-9635 or Bonnie Kavanagh at 401-334-4058 or by emailing TheHerbalNurses@gmail.com.

The McCormick Science Institute (MSI) has launched a Web site that provides information about its scientific research on health benefits of culinary herbs and spices that can be accessed by stakeholders, consumers, and health professionals. The Web site, available at www.mccormickscienceinstitute.org, has an array of features including herbs and spices mentioned in recent news, research highlights, links to various useful herb sites, an antioxidant checker (where one can compare antioxidant compounds of foods and spices in the United States), and access to the MSI online PubMed Search system (MOPS), a convenient way to find items about herbs and spices within PubMed. One may also sign-up for an email alert system to stay abreast of new herbs and spices research. More information about the Web site and MSI can be obtained by visiting the Web site: www. mccormickscienceinstitute.org.

The International Ethnobotany Database (ebDB) is a new, public database, created by the Missouri Botanical Garden, which provides a standardized, secure, independent, and non-commercial convergence for ethnobotanical data. Within this system, researchers may choose to share their data with peers of their choice or keep it private. The database is multilingual and open to any researcher who wishes to contribute data. It has a glossary, over 20 categories of data, and data export features. The current data stored is from Ecuador, Peru, Kenya, and Hawaii; however, the intention is for the database to become international. Access to the database is free and can be obtained by e-mailing accounts@ebdb.org. The database can be located online at http://olorien.org/ ebDB/login.php.

Publications

Classifieds

American Herb Association Quarterly Newsletter: \$20/yr. AHA, P.O. Box 1673, Nevada City, CA 95959.

Australian Journal of Medical Herbalism: quarterly publication of the National Herbalists Association of Australia (founded in 1920). Deals with all aspects of Medical Herbalism, including latest medicinal plant research findings. Regular features include Australian medicinal plants, conferences, conference reports, book reviews, rare books, case studies, and medicinal plant reviews. AUD/\$95 plus AUD/\$15 if required by airmail. National Herbalists Association of Australia, 33 Reserve Street, Annandale, NSW 2038, Australia.

HerbalGram: Quarterly journal published by the American Botanical Council. A benefit at all levels of membership in ABC. See page 2 for membership information or join online at www. herbalgram.org. P.O. Box 144345, Austin, TX 78714. 800-373-7105 or fax 512-926-2345. Email abc@herbalgram.org.

Medical Herbalism: Subtitled "A Clinical Newsletter for the Herbal Practitioner." Edited by Paul Bergner. \$36/yr, \$60/2 yrs. Canada \$39/yr. Overseas \$45/yr. Sample/\$6. Medical Herbalism, P. O. Box 20512, Boulder, CO 80308.

Other

COSTA RICA SEMINAR AT AMATIERRA with AHG herbalists Candis Cantin (Evergreen School) and Jill Ruttenberg. Learn about rainforest herbs & energetics of plants from Ayurvedic & TCM perspective. Learn Indigenous uses of tropical medicinals from local "medico." Have fun, good food, yoga & adventure at the same time.July 5-8, 2008. Reserve at www.amatierra. com or call 1-866-659-3805.

Get Certified with ABC's Herbal Information Course. This self-paced online course is designed to help retail employees and multilevel distributors communicate knowledgeably with customers about herbs and dietary supplements. After successfully completing the course, you'll receive an Herbal Information Specialist Certificate and a window decal announcing "Herbal Information Specialist On Staff." Renewable annually. \$69.95 Bulk pricing available. www.nutrilearn.com.

Interns, Get hands-on experience before you graduate! If you're a future pharmacist or dietitian, you can choose a rotation through ABC's internship program. You'll get a comprehensive introduction to phytomedicines, researching the medicinal, culinary and cosmetic uses of herbs, answering ABC members' questions, working with medicinal plants in ABC's 2.5 acres of herbal gardens, and preparing herbal salves, tinctures or meals. For more information, call 512-926-4900 or e-mail education@ herbalgram.org.

Stock Photography that doesn't look like Stock: Steven Foster Group, Inc. Photography, Consulting, Publications. Specializing in medicinal and aromatic plants, along with the places they grow, our stock photo files include more than 120,000 images shot around the world for over 30 years. Contact us at our location in the heart of the Ozarks in Eureka Springs, Arkansas. Visit our website: www.Stevenfoster.com or email: sfoster@ Stevenfoster.com.

HerbalGram advertising

how your business **Grows**

contact Lance Lawhon 877-832-1881 • lance@herbalgram.org

