



# HerbClip™

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**File: ■ *Sceletium* spp. (Aizoaceae)  
■ Liquid Chromatography/Mass Spectrometry (LC/MS)**

**HC 071666-559**

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**RE: Liquid Chromatography/Mass Spectrometry (LC/MS) Method for Analyzing  
*Sceletium* Alkaloids**

Patnala S, Kanfer I. Medicinal use of *sceletium*: characterization of phytochemical components of *Sceletium* plant species using HPLC with UV and electrospray ionization – tandem mass spectroscopy. *J Pharm Pharm Sci.* 2015;18(4):414-423.

The psychoactive properties of *Sceletium* spp. (Aizoaceae) aerial parts are attributed to constituent mesembrine-type alkaloids. However, phytochemical profiles vary among the eight *Sceletium* species and environmental, harvesting, and/or processing conditions contribute to these variations. As some of the constituent alkaloids are epimers and have isobaric chemistries, these authors developed a liquid chromatography/mass spectrometry (LC/MS) method to fingerprint *Sceletium* alkaloids.

The reference compounds  $\Delta^7$ mesembrenone, mesembrine, mesembrenol, mesembrenone, and *sceletium* A<sub>4</sub> were isolated from *Sceletium* species, and mesembranol and epimesembranol were synthesized. An electrospray ionization-mass spectrometry (ESI-MS) method was optimized and used together with tandem mass spectrometry (MS/MS) to create a spectral library characterizing the molecular weight and fragmentation pattern of the seven alkaloid compounds. Methanol extracts of commercial supplements and powdered aerial plant material were analyzed (number of samples not reported; source and identity of most samples were not reported).

The authors report that this fingerprinting method showed superior sensitivity (limit of quantitation for mesembrine = 50 ng/ml) and specificity as compared with other methods reported in the literature. In addition to the analysis of raw material samples, this method was successfully used to monitor the *Sceletium* manufacturing process and analyze finished products. The authors conclude that this method is well-suited for the evaluation of the botanical identity and quality of commercial *Sceletium* products, and for the detection of adulterants.

—Amy C. Keller, PhD

Referenced article can be accessed at  
<https://ejournals.library.ualberta.ca/index.php/JPPS/article/view/25220/18808>.

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