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Abstract

Ethnopharmacological relevance:

Mesembrine alkaloids are considered to be the primary active constituents of the South African medicinal plant *Sceletium tortuosum* (L.) N.E.Br. (Aizoaceae), and it is used as the dried or fermented aerial material from the plant, which is known as kanna (aka, channa, kougoed). Traditional regional use ranged from relieving thirst, mild analgesia, and alteration of mood. Current interest has focused primarily on the antidepressant action of preparations based on the plant and commercialization is expanding the recognition and availability of these preparations.

Materials and methods:

Searches for the keywords "Sceletium or mesembrine" were performed in "PubMed-NCBI", "Chemical Abstracts SciFinder" and "Thomson Reuters Web of Science" databases in addition to the inclusion of references cited within prior reviews and scientific reports. Additionally the "SciFinder" database was searched using 3a-phenyl-*cis*-octahydroindole in the SciFinder Substructure Module (SSM). Plant taxonomy was validated by the database "The Plant List".

Results:

This review focuses on the chemistry, analysis, and pharmacology of the mesembrine alkaloids. Despite a long history of medicinal use and research investigation, there has been a renewed interest in the pharmacological properties of the mesembrine alkaloids and much of the pharmacology has only recently been published. The two major active alkaloids mesembrine and mesembrenone are still in the process of being more fully characterized pharmacologically. They are serotonin reuptake inhibitors, which provides a rationale for the plant's traditional use as an antidepressant, but other actions are beginning to appear in the literature. Additionally, mesembrenone has reasonably potent PDE4 inhibitory activity. This review intends to provide an overview of the available literature, summarize the current findings, and put them in perspective with earlier studies and reviews.

Keywords: *Sceletium tortuosum*; alkaloid; mesembrine; mesembrenone; pharmacology; ethnopharmacology

Compounds included in the review: mesembrine (PubChem CID 394162); mesembrenone (Pubchem CID 216272); mesembrinol (PubChem CID 442112); sceletenone (PubChem CID 102239734)

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