MedCrave Step into the World of Research
International Journal of Complementary & Alternative Medicine

Opinion

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Searching for new sources of phytopharmaceuticals in native valeriana from Patagonia, Argentina

Volume 8 Issue 1 - 2017

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Received: July 13, 2017 | **Published:** July 17, 2017

Opinion

The study of new sources of phytopharmaceuticals is an interesting field of research and in many cases the selection of new species to study are based on plants that have been used since ancient times by different ethnic groups in each regions of the world. One of the genus of cosmopolitan distribution with many species used for medicinal purposes around the world is *Valeriana* L.

The genus *Valeriana*, with more than 250 species is widely distributed worldwide, except Australia and New Zealand, being South America an important center of diversification. The underground organ of many *Valeriana* species contains numerous compounds used as a sedative and relaxing, allowing the reduction of nervousness and agitation associated with stress. This genus is widely studied, with special focus on anxiolytic properties. For these purposes, roots of the Eurasian species *V. officinalis* L. have been used worldwide for treatment of anxiety and mild sleep disorders. A study indicates that flavonoids in this species have sedative activity in the central nervous system. Others authors suggests that biochemical composition and active constituents in *Valeriana* are phenols, valepotriates, valeric acid and gamma-aminobutyric acid. Besides, pre-clinical studies reported the antidepressant-like activity of some species as *V. officinalis*, *V. jatamansi* Jones, *V. glechomifolia* Mey. and *V. prionophylla*. Due to the importance of *Valeriana* species for medicinal purpose, in different countries have sought alternatives for replacement of *V. officinalis* by native representatives. Examples are *V. edulis* Nutt. ex Torr. & A. Gray subsp. procera (Kunth) G. F. Mey in Mexico, *V. glechomifolia* in Brazil and *V. jatamansi* in India, among others.

In this context, from the Argentine Patagonia we started the study in native Valerians in order to search alternative sources of phytopharmaceuticals. In Argentina, the genus *Valeriana* is represented by 50 species, of which 20 are distributed in Patagonia. The Andean Region of Patagonia has a rich diversity of *Valeriana* and Patagonian indigenous peoples and rural societies extensively used some of these species since ancient times for curing various human ailments. The most used *Valeriana* species by regional ethnic groups is *V. carnosa* "Ñanculahuén", considered a "sacred plant" and the breadth of its reputed uses has led to its being known as "the plant that cures the seven illnesses". This attribute confers on the species high cultural and symbolic value for the Mapuche people, and its reputation and use has spread throughout the formal and informal medicinal herb market of Patagonian cities. The crude drug is prepared from the roots and rhizomes, principally as a decoction and has been cited as hepatic, respiratory, circulatory, urinary, digestive, analgesic, anti-inflammatory, antidepressive and for treat cultural syndromes. Studies suggest that secondary metabolites in *V. carnosa* are majority valepotriates, flavonoids, phenolic acids, essential oils, among others.

Currently, we are studying different aspects of *V. carnosa*, from genetic and chemical characterization of populations distributed along Patagonia, to the study of propagation and cropping systems. The objective is to study the bioactivity of chemical compounds under the paradigm of science in *V. carnosa* and in parallel domesticate and cultivate this species, in order to obtain potential marketable font of phytodrugs and strengthen the productive development in the region.

Conflict of interests

The authors declare that there is no conflict of interests.

Acknowledgments

None.

Funding

None.

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Citation: Nagahama N, Bach HG, Manifesto MM, et al. Searching for new sources of phytopharmaceuticals in native valeriana from Patagonia, Argentina. *Int J Complement Alt Med.* 2017;8(1):1–6.
DOI: 10.15406/ijcam.2017.08.00246

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