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Article review

Medicinal plants for the treatment of “nervios”, anxiety, and depression in Mexican Traditional Medicine



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ABSTRACT

The term “nervios” is referred as a folk illness recognized by Mexican Traditional Medicine, and also widely reported across many countries in Latin America. “Nervios” are characterized by a “state of bodily and mental unrest”, which decreases the ability to achieve daily goals. The causes are varied; in fact, any situation that alters the emotional state or mood is interpreted as a possible triggering agent. Depression and anxiety are psychiatric disorders, which share symptoms, or can be included in the same group of disorders with “nervios”. The therapies are designed to reassure health, i.e. “calm the nerves”. For this propose, the oral administration of plants infusions is common. In this review we compile information regarding the plants used for the treatment of “nervios” in México, along with those for which reports of anxiolytic or/and antidepressive activity exist. We found 92 plant species used in folk medicine for the treatment of “nervios”, among these, sixteen have been studied experimentally. The most studied plant is *Galphimia glauca* Cav., Malpighiaceae, which current clinical studies have validated its efficacy in patients, and their active components, the triterpenes galphimine A, B, and C, identified. Interestingly only nine plants were found to be reported in folk medicine for the treatment of sadness or/and depression, but their antidepressant activity has not been investigated. However, among the plants used in folk medicine for treatment of “nervios”, several, as *Litsea glaucescens* Kunth, Lauraceae, have been proven to show antidepressant activity in experimental models, and some of their active compounds have been determined. These species could be a potential source of compounds with activity in the central nervous system.

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Introduction

“Nervios” is a group of human maladies recognized by Mexican Folk or Traditional Medicine, which can be translated as “jitters”. Synonyms are: “alteration of nerves, nerves, and nervousness”. “Nervios” are characterized by a “state of

unrest in which is usual getting insomnia, loss of appetite or compulsive eating, anxiety, rapid pulse, occasional despair and other disorders such as hair loss, dermatitis and weakness. Any circumstances that alter the emotional state or mood are interpreted as possible triggering agents” (Zolla, 1990). Several ethnic groups of México, for instance the “Pame” ethnia at the

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State of San Luis Potosi, distinguish this group of maladies, and name them as “lamayin” (Chemin, 1984).

Several conditions are described as: sporadic, customary, and explosive. The first one is an occasional state suffered by any human being. The second is part of the character of an individual, which in itself is affected, and suffering from a state of chronic anxiety, among other symptoms. The third is a “nervous breakdown”, a severe condition, in which the individual shows little control over their emotions and actions, occurring suddenly in response to a stressful stimulus; loss of consciousness may occur (Guarnaccia et al., 1989; Zolla, 1990). The therapies are designed to reassure health, i.e. “calm the nerves”, recuperate sleep and appetite, and alleviate particular conditions of each case. The oral administration of plant infusions, decoctions, but also as inhalations, as well as hot or cold baths generally prepared with aromatic plant species is common. Massaging, rubbing and kneading the body (“sobadas”) are also prescribed for muscle relaxation and to reduce stress. Commonly therapies are accompanied by rituals and ceremonies in order to improve the psychological status (Campos and Cano, 1979; Zolla, 1990).

“Nervios” is referred as a folk illness; it is included in the “culture-bound syndromes”, treated in the Appendix I of the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) (American Psychiatric Association, 1994). This manual defines “nervios” as an idiom of distress used throughout Latin America and the Caribbean, which reflects a broad range of expressions of negative feeling states due to stressful experiences (Alcántara et al., 2012), the phrase is helpful in indicating negative aspects of experiences, and associated culturally shaped communication patterns (Durà-Vilà and Hodes, 2012). However, “nervios” is so widely reported across many contrasting regional, linguistic, and demographic barriers that it defies description as a culture-bound syndrome. The way the illness is experienced and conceptualized may vary across cultural groups (Guarnaccia, 1993). “Nervios” may be caused different reasons; in fact, every stressful situation can act as a triggering agent that alters the mood and induces depression or anxiety, for example, familiar, economic and/or working problems, strong impression or a social conflict (Guarnaccia et al., 1996). These individuals may experience a variety of social, political, economic and familiar issues (Weller et al., 2008).

Depression and anxiety are clinic illnesses related to the central nervous system (CNS), which share symptoms, or can be included in the same illness group with the so called “nervios”. For example, people who suffer of “nervios” or depression experience sadness, disturbed sleep and reduced concentration and attention (WHO, 2010). In the case of anxiety and “nervios”, the people have trembling, dizziness, headaches, stomach disturbances. Mexicans being “ill” with “nervios” or “suffering” from “nervios” report feelings of desperation, emotional condition of restlessness, concentration difficulty, irritability, insomnia and/or feelings of hopelessness, among others. Other health problems may be present, such as loss of appetite or increased appetite, headaches, rapid heart palpitations, and high or low pressure, chest and abdominal pains, tingling sensations, hair loss, dermatitis and/or weakness.

The aim of this paper is to answer the questions: How many and which plant species are reported in Mexican Traditional Medicine for the treatment of “nervios”, depression and anxiety? Which species have been studied chemically and pharmacologically? Does scientific evidence support the purported medicinal folk applications for the treatment of nervous illness by the studied plants?

In this review, we compile the plants used for the treatment of “nervios” (Chart 1), sadness and/or depression (Chart 2) in folk medicine in México. The plant species were obtained from bibliographic sources of Mexican Traditional Medicine. A systematic search was performed using the following terms: “nervios”, México, plants depression, sadness and anxiety, and their combinations. The review covers the past 15 years until March of 2013, mainly from the electronic data bases: Base de Datos de Plantas Medicinales (BADEPLAM, Instituto de Biología of the Universidad Nacional Autónoma de México), Atlas de las Plantas de la Medicina Tradicional Mexicana (Argueta et al., 1994), and Medline (PubMed). We also reviewed those plants subjected to scientific studies, since these species can be a potential source of compounds with activity in the CNS. Biomedical researchers that research the chemical and pharmacological basis of ethnobotanical knowledge, for instance by studying extracts of plants, commonly use animal models to determine potential antidepressant-like or anxiolytic-like activity. This review was divided in the following sections: Plants used in Mexican Traditional Medicine for the treatment of “nervios” (Section 1), or sadness and depression (Section 2). Experimental studies of plants with models to assess anxiolytic activity (Section 3) or antidepressant activity (Section 4).

Medicinal plants in folk medicine for the treatment of “nervios”

In México, the treatments for “nervios” include home remedies, such as herbal “teas” (including infusions and decoctions), are used by rural and urban population. Patients, even in metropolitan areas, can combine traditional medicine practices with prescribed drugs (Campos and Cano, 1979; Finkler, 1989; Argueta et al., 1994). Teas are prepared with only one plant, or as mixture of plants, among them: *Agastache mexicana* (toronjil morado), *Agastache mexicana* subsp. *xolocotziana* (toronjil blanco), *Dracocephalum moldavica* (toronjil azul or chino), *Cinnamomum* sp. (canela), different species of *Citrus* flowers (flor de azahar), *Chiranthodendron pentadactylon* (flor de manita), *Ternstroemia* sp. (tila), *Foeniculum vulgare* (hinojo), *Ipomea stans* (tumbavaquero) (Balam, 1987; Magdaleno, 1987; Campos, 1990; Linares et al., 1995). Cold and hot baths with these plants are recommended, especially with aromatic species (Chemin, 1984; Zavala, 1990).

According to our review, in México, there are 92 plant species used for the treatment of “nervios” (Chart 1). These represents the 2.74-2.96% of Mexican medicinal plants, estimated the order of 3103 to 3352 species (Bye, 1998). These are reports from several locations from 16 of 32 States of the Republic. Almost 50% of the species belong to eight families: Asteraceae 10.87%, Rutaceae 7.6%, Lamiaceae 6.52%, Passifloraceae 5.43%,

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