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# Is There a Place for *Satureja* species in Complementary and Alternative Medicine? Animals Studies Done but Clinical Trials Remain

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In the recent year, there has been a great interest in finding and using bioactive chemicals from plant sources because of undergoing costs and side effects of many chemical drugs. Regarding safety and effectiveness of traditional herbal medicine, plant products are the first choice of health care and disease treatment depending on the culture. For example, according to the World Health Organization (WHO), approximately 25% of modern drugs used in the United States have been derived from plants (WHO, 2005).

As reviewed by Momtaz and Abdollahi (2010), *Satureja* species belonging to the family Lamiaceae (Labiatae) has been used traditionally to treat some inflammatory diseases, diabetes, obesity, cramps, muscle pains, nausea, indigestion, diarrhea and various infectious diseases, owing to its antioxidant, anti hyperlipidemic, spasmodic, anti-diarrheal, antibacterial and antifungal activities.

In the review of Momtaz and Abdollahi (2010) authors referred to phytochemical profile and pharmacological properties of different species of *Satureja* and showed the most important compounds with biological potential are oxygenated monoterpenes found in the essential oils. This results support by newly published studies showing anti antimicrobial, antifungal, insect-repellent and antioxidant activities from other *Satureja* species due to the oxygenated monoterpenes of the essential oils such as carvacrol and thymol (Lima *et al*., 2011; Serrano *et al*., 2011).

A question that raised from the study of Momtaz and Abdollahi (2010), was that why *S. thymbra* oil did not show anti-inflammatory effect in one of the studies? Thus, it seems the essential oil properties from different species of this herb need to be examined in more details. However, in many studies, carvacrol and thymol have been introduced as the major components of the essential oils of *Satureja* speices. One of the concerns is the location and country that the herb is grown. For instance, some differences exist between essential oil of *S. thymbra*, growing in Turkey or *S. khuzestanica* from Iran. Some species of *Satureja* have shown more antibacterial effects resulting from their phenological stage and habitat conditions.

Another concern about this herb is lack of adequate high-quality clinical studies that are essential to be conducted after animal studies. Of course this concern is not limited to this herb and it is a general concern. Since sometimes there is an important distinction between the *in vitro* and *in vivo* usefulness of a substance, effective dose and bioavailability should be determined *in vivo*. Despite the fact that some professional herbalists believe that herbal remedy by medicinal and edible plant are quite safe as they are "natural", current data in the literature warrant more attention to toxicity concerns. Fortunately this herb has been found safe when tested pre-clinically (Abdollahi *et al*., 2003).

Unfortunately, clinical trial of this genus is limited to *S. khuzestanica* an endemic plant of Iran that has been examined in diabetic patients and found efficacy of 250 mg/day/2 months dried

leaves of *S. khuzestanica* as a supplement in treatment of hyperlipidemia associated with diabetes (Vosough-Ghanbari *et al.*, 2010). Of course another new clinical trial has been conducted about usefulness of this herbal medicine in human ulcerative colitis (Rastegarpanah *et al.*, 2011). Despite consuming large amount of various species of *Satureja* as a spice or food additive worldwide, more and better-designed clinical researches are needed before recommendations can be made for this herb in diabetes or inflammatory conditions (Hasani-Ranjbar *et al.*, 2009). Also, the herbal supplements from *Satureja* oils should be standardized on the basis of active compounds carvacrol and thymol. In conclusion, this article (Momtaz and Abdollahi, 2010) provides good information about some of benefits of *Satureja* spp. oils.

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