

March 11-12, 2019
London, UKNikola M Stojanović et al., Am J Ethnomed 2019, Volume 6
DOI: 10.21767/2348-9502-C1-008

The potential of lemon-balm (*Melissa officinalis*) essential oil to suppress anxiety related behavior in animals

Nikola M Stojanović, Pavle Randjelović, Marko Mladenović, Nenad Stojiljković, Sonja Ilić, Gordana Nikolić and Niko S Radulović

University of Nis, Serbia

Anxiety disorders are among the most frequent psychiatric diseases with around ¼ of the world population suffering from these disorders during their lifetimes [1, 2]. Besides psyche related symptoms these patients can have a large number of somatic symptoms as well. Although, the treatment of these disorders is mainly focused on resolving its mental component, one cannot neglect the need for the treatment of accompanying somatic symptoms. *Melissa officinalis* L. (lemon balm), in various formulations has been extensively used as an ethnomedicinal remedy for the treatment of different psyche related symptoms and its use is considered relatively safe. In the present study, the potential activity of *M. officinalis* essential oil was evaluated in several *in vitro* models and *in vivo* animal studies mimicking or involving anxiety-related somatic symptoms. Effects of *M. officinalis* essential oil on BALB/c mice motor activity was estimated using an open field, rotarod and horizontal wire tests. The performance of mice treated with 25 mg/kg of the oil showed a statistically significant decrease in the motor impairment arising from acute anxiety (open field test), while there was a prolonged latency and a reduction of the frequency of falling from a rotating rod and/or a horizontal wire (signs of muscle weakness/spasms). Additionally, the essential oil was assayed for its potential in inhibiting acetylcholinesterase activity and was found to be a very weak enzyme inhibitor. The potential beneficial properties of the essential oil on the function of the gastrointestinal system were evaluated in the models of spontaneous and induced isolated mouse ileum contractions. Concentrations

of the essential oil higher than 1 µg/mL were found to inhibit both spontaneous and induced ileum contractions. The observed activity of the essential oil could be attributed to a large number of different constituents of the oil, most probably the monoterpenes which represent more than 50% of the oil.



Recent Publications

1. Ballard C G, O'Brien J T, Reichelt K and Perry E K (2002) Aromatherapy as a safe and effective treatment for the management of agitation in severe dementia: The results of a double-blind, placebo-controlled trial with Melissa. J Clin Psychiatry 63(7):553-558.
2. Stojanović N M, Samardžić L J, Randjelović P J and Radulović N S (2017) Prevalence of self-medication practice with herbal products among non-psychotic psychiatric patients from southeastern Serbia: A cross-sectional study. Saudi Pharm J. 25(6):884-890.

**March 11-12, 2019
London, UK**

3. **Ulbricht, Brendler T, Gruenwald J, et al. (2005) Lemon balm (*Melissa officinalis* L.): an evidence-based systematic review by the natural standard research collaboration. J Herb Pharmacother. 5(4):71-114**

Biography

Nikola Stojanovic obtained his MD Degree in the Department of Medicine, Faculty of Medicine, University of Nis, Serbia and was awarded as the Best Graduated Student for the graduation year 2014/2015. He began his research work during the second year of his studies and he is now doing a large number of specialized *in vivo* and *in vitro* experiments in the fields of pharmacology, toxicology, biology, immunology and microbiology of active natural/synthetic compounds. His main focus currently involves the effects of essential oils on the levels of anxiety in both humans and animals. Besides that, he is an Author and Coauthor of a number of publications in highly esteemed peer-reviewed journals.