

## STUDY OF ANXIOLYTIC ACTIVITY OF TAJIKISTAN-GROWN *SALVIA SCLAREA* DRY EXTRACT

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**Introduction.** In the modern world, under conditions of excessive, intense and inadequately prolonged stress exposure of various external factors, the human body needs therapeutic or therapeutic and prophylactic agents that have a protective neurotropic, or neuroprotective, effect. Stress, especially chronic stress, is considered one of the main factors in the development of many pathologies. Psycho-emotional stress and constant fatigue lead to the appearance of various symptoms that force one to seek medical help. During periods of stress, adaptive changes are observed at the physiological, mental and behavioral levels. Medicines that correct the results of a person's perception of exogenous factors, as well as have a regulatory effect on endogenous stress mechanisms, can help overcome the destructive consequences of chronic stress.

An advantage of medicinal herbal preparations created considering modern scientific achievements is the presence in their composition of a wide range of biologically active substances that have a multi-vector therapeutic and therapeutic-prophylactic effect, combined in most cases with safety and the possibility of long-term use.

*Salvia L.* – is one of the greatest genera of the *Lamiaceae* family, accounting about 900 species. The most studied medicinal plant is *Salvia officinalis* L. Aqueous and hydroalcoholic extractions of leaves as well as essential oil are used in medicine since ancient times. Except the pharmacopoeial specie, of scientific interest is also clary sage (*Salvia sclarea* L). According to Atanasova-Shopova S, Rusinov K. (Effects of the *Salvia sclarea* essential oil on the central nervous system // Izv Inst Fiziol. 1970. Vol. 13. P. 89–95) the essential oil of *Salvia sclarea* L markedly enhanced the anesthetic effects of hexobarbital (“Evipan”) in doses less than 20% LD50 (520 mg/kg in male mice), but did not have a significant effect on spontaneous motor activity and statokinetic reflexes.

The Department of Pharmaceutical Technology and Pharmacology of the Tajik National University is currently developing hard gelatin capsules containing dry extract of clary sage, growing in Tajikistan. A technology has been developed for the production of dry extract of clary sage (DECS) using the percolation method and extraction with 70% ethanol.

**Aim.** Study of the anxiolytic activity of dry extract of clary sage, growing in Tajikistan, with the aim of developing a medicinal product.

**Materials and methods.** The study of the anxiolytic effect of DECS was carried out on the basis of the Educational and Scientific Institute of Applied Pharmacy of the National University of Pharmacy. The studies were conducted on white outbred female rats weighing 200±20 g, which were kept in a vivarium. Animals were cared for in accordance with standard laboratory operations, all stages

of the study were carried out in accordance with Directive of the European Parliament and Council 2010/63/EU of 22 September 2010 “On the protection of animals used for scientific purposes”.

The elevated plus maze test was used to study the anxiolytic effect. This test is basic for studying the effect of the test substance on anxiety in animals. The elevated plus maze test was carried out on an appropriate laboratory installation, where the following indicators were recorded for 5 minutes: duration of stay in the light compartment (including in the center of the installation), duration of stay in the dark compartment and the total number of transitions between compartments. The test was performed 1 hour after the last injection of the test sample.

Each stage of the study was reproduced according to the following design: 24 animals were divided equally into 4 experimental groups:

- Negative control (NC) / positive control (PC);
- Animals administrated DECS at a dose of 100 mg/kg;
- Animals administrated DECS at a dose of 200 mg/kg;
- Animals administrated DECS at a dose of 300 mg/kg.

Statistical processing was carried out using the basic software package MS Exel 2007 and IBM SPSS Statistics 22. Comparison of experimental groups was carried out using parametric analysis methods (ANOVA, Tukey HSD test). The reliability of the differences was determined by the level of significance  $P < 0,05$ .

**Results and discussion.** In the elevated plus maze test, a significant manifestation of activity was observed only in one dose of DECS, 300 mg/kg. Doses of 100 and 200 mg/kg did not lead to modifications in the behavioral reactions of rats in comparison with the conditional norm of negative control. At the maximum dose, DECS led to a significant increase in the time spent in the light compartment by 69.3% (66.7 s) compared to the control. In addition, the number of transitions between compartments increased by 42.4%, but there was no statistically significant difference from NC in this indicator. ( $p > 0,05$ ).

**Conclusions.** The anxiolytic activity of dry extract of *Salvia sclarea* L., growing in Tajikistan, was screened using the elevated plus maze test, which demonstrated a moderate anxiolytic effect at a dose of 300 mg/kg.

**Key words:** *Salvia sclarea* L., anxiolytic activity.