

STUDY OF ACUTE TOXICITY OF SCUTELLARIA ISCANDERI L. HERBAL TINCTURE

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Scutellaria iscanderi L. - perennial herbaceous plant, of Lamiaceae family. *Scutellaria L.* genus comprises 360 species of flora of the world, of which 148 species grow in the CIS. The chemical composition of plants of the genus *Scutellaria L.* is diverse and represented by phenolic acids, iridoids, di- and triterpene compounds cardenolides, coumarins, tannins and flavonoids. From the roots of *Scutellaria baicalensis* in Russia tincture is used as a means of relieving stress, neurosis and reducing high blood pressure. On the territory of the Republic of Uzbekistan grows such kind of *Scutellaria* genus, as *Scutellaria iscanderi L.* From its roots tincture is obtained, which has hypotensive and sedative properties, in folk medicine, *Scutellaria L.* is used for heart diseases. Study the pharmacological property as acute toxicity of a tincture is important for further study *Scutellaria iscanderi L.* The results were processed by the method of variation statistics by the Student's test. The calculation of the average dose was carried out according to the Litchfield and Wilcoxon scheme by the method of analysis probs.

Objective of research. The aim of the study is to study the acute toxicity of a tincture obtained from the aerial part of the plant *Scutellaria Iscanderi L.*

Method of research. Since the preparation contains 70% ethanol in its composition, we performed de-alkalization of the preparation, by evaporation under mild conditions to an almost dry residue (after this procedure, ethanol was almost completely absent in the preparation), followed by water purification to the original volume, this procedure was used to eliminate the nonspecific activity of ethanol [1]. De-alkalized extract was used to study acute toxicity and specific activity. Acute toxicity studies were conducted according to the conventional method [2], white mongrel mice (both sexes) weighing 18-22 g, 6 animals in experimental groups, and 6 animals in an intact group, 36 mice in all. Preparations for the experimental animals were administered orally in the form of an aqueous solution in doses of 5 ml / kg (0.1 ml / 20 g), 10 ml / kg (0.2 ml / 20 g), 15 ml / kg (0.3 ml / 20 g), 20 ml / kg (0.4 ml / 20 g) and 25 ml / kg (0.5 ml / 20 g). Then the animals were placed in separate cells into groups and conducted continuous monitoring during the first hour, followed by hourly observation, during the first day, and once a day, during the subsequent 13 days of the experiment (the total observation period was 14 days). They took into account the general condition of the animals, the features of their behavior, the intensity and nature of the motor activity, the presence and nature of the convulsions, the coordination of movements, the tone of the skeletal muscles,

the response to tactile, pain, sound and light stimuli, the frequency and depth of the respiratory movements, the rhythm of the heartbeats, The state of the coat and skin, the color of mucous membranes, the position of the tail, the amount and consistency of fecal matter, the intake of feed and water, changes in body weight and other indicators characterizing toxic action. Also, the timing of development of intoxication and death of animals were recorded [1,2]. The calculation of the average dose (LD50) was carried out according to the Litchfield and Wilcoxon scheme by the method of analysis probs.

Results. The results were processed by the method of variation statistics by the Student's test for $P = 0.05$ [2]. The tables show the average arithmetic meanings (M), the corresponding standard errors of the mean value (m), the Student's criterion (t), the number of samples (n), the confidence limits (the lower confidence limit ÷ the upper confidence limit). After oral administration of the drug, a number of changes were observed characterizing the toxic effect of the preparations. When studying the change in body weight of experimental animals, in comparison with the intact group, no significant changes in body weight gain were detected during the entire experiment period (Table 1).

Table 1

Results of studying the change in body weight of animals, in grams

($M \pm tm$; $p=0.05$; $n=6$)

Group	Initial	after 7 days	after 14 days
Intact	19.83 (18.15÷21.51)	23.17 (21.62÷24.71)	26.33 (24.75÷27.91)
Scutellaria Iscanderi L tincture			
5 ml/kg	20.67 (19,23÷22,10)	24.00 (22.67÷25.33)	27.17 (25.62÷28.71)
10 ml/kg	20.33 (18,90÷21,77)	23.67 (22.09÷25.25)	26.50 (25.05÷27.95)
15 ml/kg	20.17 (18,77÷21,56)	23.50 (22.05÷24.95)	26.83 (25.03÷28.64)
20 ml/kg	20.33 (18,38÷22,29)	23.50 (21.65÷25.35)	26.17 (24.24÷28.09)
25 ml/kg	20.17 (18,77÷21,56)	23.83 (22.61÷25.06)	26.50 (25.05÷27.95)

Calculation of acute toxicity due to the absence of dead animals after oral administration of the drugs was not possible, which indicates the absence of toxicity in the dose range of 5-25 ml/kg, therefore it is assumed that $LD_{50} > 25$ ml/kg.

Conclusion. The obtained results indicate a good tolerance of the drug, since when administered orally, even at the maximum dose, there is no loss of animals. The lack of influence of the drug on the increase in body weight of experimental animals, also indicates good tolerability.

References:

1. Manual on experimental (pre-clinical) study of new pharmacological substances / [under ed. of R. U. Khabriev]. – 2nd ed., rew. and com. – M.: OAO «Publishing House «Медицина», 2005. – 832.

2. Manual on conduction of pre-clinical research of medicinal forms. Part one / [under ed. of A.N. Mironov]. – M.: Grif and K, 2012. – 944.