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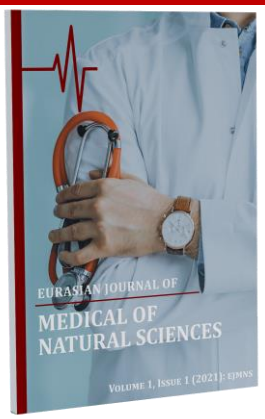

STUDY OF ACUTE TOXICITY AND SPECIFIC ACTIVITY OF AQUEOUS INFUSION OF THE PLANT CAMEL THORN

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ABSTRACT
The paper presents the results of studying the acute toxicity and specific activity of the aqueous infusion of the camel thorn plant. The study was carried out on healthy white mice, quarantined, weighing 19-21 g, mixed gender. The data were statistically processed using the STATISTIKA program for Windows 95. The results obtained showed that the infusion does not have a toxic effect and has a diuretic effect.

Introduction. Camel thorn is a genus of perennial xerophyte plants with a characteristic powerful root system capable of extracting moisture from deep soil horizons, modified thorn shoots and pink or red flowers located on them. Plants of the camel thorn genus have astringent, hemostatic, antiseptic, anti-inflammatory, wound healing and choleretic properties.

Alkaloids, tannins (at least 7%), saponins, flavonoids, including quercetin and isorhamnetin (up to 2.2%), coumarins, vitamins P, C, K and group B, carotenoids (provitamin A), essential oil, organic acids, including ursolic, resins, wax.

The purpose of the research: to study the acute toxicity and specific diuretic action of the aqueous infusion of the camel thorn plant.

1. Acute toxicity study.

Material and methods: acute toxicity was studied on 12 quarantined white mice. The animals were divided into 2 groups of 6 animals each. An aqueous infusion of camel thorn in a ratio of 1:10 was administered once intragastric to mice weighing 19–21 g at doses of 15 ml/kg and 25 ml/kg (0.3 ml and 0.5 ml) [1].

The animals were under hourly observation during the first day of the experiment, while survival during the experiment, general condition, possible convulsions and death were used as indicators of the functional state of the animals. Then, daily, for 2 weeks, in animals of both groups, the general condition and activity were observed, behavioral reactions were taken into account, and the condition of the coat and skin was observed. All experimental animals were kept under the same conditions and on a general diet with free access to water and food. After the completion of the experiment, the average lethal doses (LD50) were determined [2].

Results: The experiments showed that after a single intragastric administration of an aqueous extract of camel's thorn in doses of 0.3 ml/kg and 0.5 ml/kg, no visible changes in the functional state of the experimental animals were observed. All mice were active, food and water intake were normal. There were no pathological changes in the condition of the coat and skin, and no signs of intoxication were observed. In this group, until the end of the experiment, death among animals was not observed.

The LD50 of the aqueous infusion was over 25 ml/kg. The results of the study are shown in table 1.

Table 1.

Determination of acute toxicity of aqueous infusion of camel thorn

№ animals	Water infusion of camel thorn				
	Weight, g	Dose		Route of medication	Fatality
		ml/kg	ml		
1	19	15	0,29	в/ж	No
2	21		0,31		No
3	19		0,29		No
4	19		0,29		No
5	20		0,30		No
6	21		0,31		No
1	20	25	0,50	в/ж	No
2	19		0,48		No
3	20		0,50		No
4	20		0,50		No
5	19		0,48		No
6	19		0,48		No
LD_{50}		**25 ml/kg**			

Thus, the data obtained show that the LD50 of camel thorn water infusion is more than 25 ml/kg and does not have a toxic effect.

2. Study of specific activity

Material and methods: The specific diuretic activity of an aqueous extract of the camel thorn plant was studied on healthy white rats, quarantined, weighing 170–220 g, of mixed gender [1].

The experimental animals were kept under standard vivarium conditions with free access to water and food. For the experiment, the animals were divided into 3 groups of 6 animals each:

Group 1 - control (introduced purified water);

Group 2 - experimental, an aqueous infusion of camel thorn was administered at a dose of 10 ml/kg;

Group 3 - experimental, an aqueous infusion of half a floor produced by HC "Flora Uniprom" was administered at a dose of 10 ml / kg.

The animals were kept without food and water for two hours before the water load. Then the rats were intragastric injected with an aqueous infusion of camel thorn and half a floor at a dose of 10 ml/kg (water infusion was prepared in a ratio of 1:10) with a water load of 3% of body weight. Next, the animals were placed in exchange cages and urine was collected for 1-3, 6-24 hours. The excreted volume of rat urine was recalculated per 100 g of animal body weight [3].

The results obtained showed that an aqueous infusion of camel thorn at a dose of 10 ml/kg has a noticeable stimulating effect on diuresis. With a single application during the first 3 hours after the water load, diuresis increased by 28%, within 6-24 hours - by 63% compared with the control. In general, an aqueous infusion of camel thorn increases daily diuresis by an average of 39.5% compared with the control group.

The introduction of an aqueous infusion of half a floor at a dose of 10 ml/kg during the first 3 hours after the water load increased diuresis by 40.4%, within 6-24 hours - by 30% compared with the control group. In general, half-poly water infusion increases daily diuresis by an average of 37.4% compared with the control group (Table 2).

The obtained data were statistically processed using the STATISTIKA program for Windows 95.

Table 2

Influence of water infusion Camel thorn on daily diuresis
(excreted urine volume of rats in ml in terms of 100 g of body weight)

Groups	**Urine excreted in ml per 100 g of body weight**		
	1-3 hours	**6-24 hours**	**total**
Test	2,05±0,24	0,86±0,15	2,91±0,17
Camel thorn infusion 10 ml/kg	2,64±0,17	1,41±0,10*	4,06±0,26*
Infusion mountain knotgrass 10 ml/kg	2,88±0,21*	1,12 ±0,08	4,0±0,21*

Note: *- significance of differences in comparison with control at P<0.05.

Thus, the study of the specific action of the aqueous infusion of camel thorn showed that the plant has a diuretic effect.

Conclusion. The study of acute toxicity and specific diuretic action of the aqueous infusion of the camel thorn plant showed that the infusion does not have a toxic effect and has a specific diuretic effect.

References:

1. Guidelines in the Guidelines for the experimental (preclinical) study of new pharmacological substances. Under the general editorship of Corresponding Member of the Russian Academy of Medical Sciences, Professor R. U. Khabriev. Second edition, revised and enlarged. M.: - 2005. - M.: JSC "Publishing house" Medicine ", 2005.- 830s.
2. Belenky M.L. Elements of quantitative assessment of the pharmacological effect. L Medgiz 1963, -152 p.

3. Makarenko N.V., Zaitseva E.N., Dubischev A.V., Andriyanov D.A. Study of acute toxicity and diuretic activity of metal derivatives of humic, fulvic and humic acids//Proceedings of the Samara Scientific Center of the Russian Academy of Sciences.- 2015.-T.17, No. 5(3).-S.925-929.