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Study Of General Pharmacological Properties And Acute Toxicity Of Cistanche Mongolica Extract

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Abstract: The purpose of this study was to study a new extract of the plant *Cistanche mongolica* for general pharmacological irritating effects on the skin, when applied to the conjunctival sac of the eye, mucosal hyperemia and lacrimation, cumulative, allergizing effect. At the same time, it does not cause changes, which makes it safer.

Keywords: Extract of the plant *Cistanche mongolica*, pharmacology, general pharmacological properties, acute toxicity of the substance in oral administration.

This scientific article will present the toxico-pharmacological properties of *Cistanche plants*, from the family Zarazichaceae, genus plant Area. Currently, it is very important to find effective medicinal substances from local plants. [1;3;5] Cistanche is widely used in traditional Chinese medicine. Abroad, Cistanche tubulosa is widely used for the treatment of osteoporosis (OP), Alzheimer's disease (AD) and for the treatment of male sexual dysfunction (MSD).

Cistanches Herba - used to treat kidney failure, impotence, female infertility, pathological whites, abundant metrorrhagia and senile constipation. [2;4] Taking into account the above, we analyzed some pharmacological properties and acute toxicity of *Cistanche mongolica* species growing in the Fergana region of the Republic of Uzbekistan. Information on acute toxicity is provided below.

The purpose of the study: To determine the acute toxicity and general pharmacological properties of the extract isolated from the aboveground and underground parts of the plant *Cistanche mongolica*

Material and methods of research. The experiments were carried out at the Institute of Plant Chemistry named after Academician S.Yu. Yunusov of the Academy of Sciences of the Republic of Uzbekistan. The object of the study is an extract isolated from the aboveground and underground parts of the plant *Cistanche mongolica*, collected from the Fergana State Natural Monuments, which is located in the Yezevon district. The stem of the plant was extracted with 80% ethanol. The animals were randomly selected, kept in their cages for at least 5 days before the start of administration, so that acclimatization to laboratory conditions occurred. The experiments were carried out in vivarium conditions and 60 female white mice weighing 18-22 g were observed. During the experiment, the acute toxicity of the substance is determined by oral administration. Experiments of general pharmacological properties were carried out in rabbits, albino guinea pigs and white rats weighing 200-220 g. All procedures with animals were carried out in accordance with the requirements of the international recommendations of the European Convention for the Protection of Vertebrates Used for Experiments or Other Scientific Purposes [6]. To study the local irritant effect of the dosage form of the drug was carried out in experiments on rabbits by application to a pre-trimmed area of the skin of the back (4x5cm). The extract of *Cistanche mongolica* was applied daily as a solution of 4 drops for 20 days. A solvent was applied to the control group of animals under similar conditions.

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The study of the irritating effect on the mucous membrane of the eye of the drug was evaluated when applied to the conjunctival sac of the eye of rabbits.

The cumulative effect of the drug was studied in experiments on white rats when used internally. *Cistanche mongolica* extract was administered in doses of 50-100 and 200 mg/kg daily for 20 days. A control group of animals was injected with saline solution under similar conditions. During the experiment, the general condition, weight, behavior, condition of the hair of the skin, mucous membranes, food and water intake were observed.

The study of the possible allergenic effect of the drug was carried out in experiments on albino guinea pigs. The anaphylactic activity of the drug was evaluated on the model of anaphylactic shock (1gr), active skin anaphylaxis (2gr). Guinea pigs of group 1 were injected with the drug according to the following scheme: Three sensitizing injections were made, the first subcutaneously, the next two intramuscularly every other day.

The permissive dose of the drug was administered intraperitoneally on 21 days from the beginning of the experiment. Control animals were injected with a saline solution and a permissive dose of the drug for 21 days according to a similar scheme.

In the study of cutaneous anaphylaxis, animals of group 2 were immunized as well as animals of group 1. On the 21st day of the experiment, guinea pigs were injected intradermally with 0.05 ml of the drug solution on the trimmed area of the back. Active cutaneous anaphylaxis was assessed by intravenous administration of 0.5 ml of 1% blue Evans solution. Control non-immunized animals were given a permissive dose of the drug and blue Evans solution according to a similar scheme. After 30 minutes, the animals were slaughtered (under ether anesthesia) and the size of the blue spot on the inside of the skin at the injection site was determined.

The quantitative data obtained in the course of the study were analyzed using the Student's t-test using the method of variation statistics STATISTICA version 6. StatSoft, Inc. (2001) and analyzed by numerical accelerated method based on a static table of evaluation of pharmacological efficacy.

Results and their discussion. Acute toxicity of the extract from the aboveground and underground parts of *Cistanche mongolica* plants was carried out on female white mice. During the experiments, the test substance was administered orally in doses from 1000 mg/kg to 10000 mg/kg and was observed during the first 3-4 hours and 7-14 days. In small doses, side effects were almost not observed. When the dose was exceeded 8000 mg / kg, rapid breathing, rapid heartbeat, decreased mobility were initially observed. With an increase in the dose, no lethal outcome was observed during the first 3-4 hours. The results obtained as a result of the experiments are presented in Table 1 below.

Table 1

Results of acute toxicity of *Cistanche mongolica* plant extract in white mice.

№	Name of the substance	Dose mg/kg	Number of animals	Number of dead	Number of survivors	Number of survivors in %
1.	*Cistanche mongolica*	1000	10	0	10	100
2.	*Cistanche mongolica*	3000	10	0	10	100
3.	*Cistanche mongolica*	5000	10	0	10	100
4.	*Cistanche mongolica*	7000	10	0	10	100
5.	*Cistanche mongolica*	8000	10	0	10	100
6.	*Cistanche mongolica*	10 000	10	0	10	100

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As a result of experiments, the average lethal dose of LD50, acute toxicity of *Cistanche mongolica* plant extract was more than 10,000 mg / kg when administered orally. From the point of view of acute toxicity, the substance is practically harmless, and belongs to class V.

The experiments conducted to study the irritant effect showed that the drug does not irritate the skin with repeated skin application (20 times). When applied to the conjunctival sac of the eye, there was no hyperemia of the mucous membranes and lacrimation.

The results of the cumulative effect studies have shown that the drug does not cause noticeable changes in the general condition and behavior during the experiment. There were no visible changes on the part of the skin (injection site). All animals ate food well, gained weight. No animal deaths were noted.

Consequently, the extract of *Cistanche mongolica* does not cause material accumulation in the body of animals.

The results of the conducted studies of the possible allergenic effect of the drug showed that after administration of the permissive dose of the drug in group 1 of guinea pigs there were no signs of anaphylactic shock. The general condition and behavior of all animals were unchanged, the condition of the hair, skin and visible mucous membranes did not differ from intact animals. In the 2nd group of animals, the size of the spot on the back of the skin did not exceed 5 mm. Consequently, the extract of *Cistanche mongolica* does not have an *allergenic* effect.

Preclinical toxicological studies have established that Cistanche mongolica extract, with a single and repeated application, does not have an irritating effect on the skin and mucous membrane of the eye of experimental animals.

The extract of *Cistanche mongolica* does not have a cumulative and allergenic effect when reused. With its long-term use, it does not have a toxic effect on the animal body and does not have an irritating effect at the injection site.

Conclusion. Thus, it was found that the acute toxicity of the plant extract of *Cistanche mongolica* was more than 10,000 mg / kg when administered orally. From the point of view of acute toxicity, the substance is practically harmless, and belongs to class V. In the studied doses of 50, 100 and 200 mg / kg does not have an irritating effect on the skin. When applied to the conjunctival sac of the eye, there was no hyperemia of the mucous membranes and lacrimation. It does not have a cumulative and allergenic effect.

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