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RESEARCH OF TOXICOPHARMACOLOGICAL PROPERTIES OF THE SUBSTANCE OF SETULIN HEMOSTATIC PREPARATION

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Abstract

In present article results of researches of acute toxicity of a substance of hemostatic preparation Setulin are resulted. Setulin preparation at dose 6000 mg/kg causes oppression of a physiological condition of organism of experimental mice, and at doses 7000, 8000 and 9000 mg/kg is caused their destruction, percentage makes accordingly $33,3 \pm 1,3\%$; $50,0 \pm 1,4\%$ and $66,6 \pm 1,6\%$. Thus, the dose of a substance of a preparation Setulin, causing destruction of experimental animals at oral introduction (LD50) is equaled 7200 mg/kg. According to the GOST of RK 12.1.007-76 substance of Setulin preparation concerns the fourth class of danger substances (low-hazard substances).

Keywords: Setulin, acute toxicity, preparation, hemostasis.

Introduction

The problem of arrest of bleeding remains to this day to one of serious problems of clinical practice in surgery, obstetrical pathology, otorhinolaryngology, at treatment of infectious diseases, different types of wounds, and also at overdose of anticoagulants. It

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proves application of effective and reliable styptic remedies of the general and local action [1]. Among well-known hemostatic remedies the lagochilin substance is recognized. This substance contains in plants of *Lagochilus* genus, which styptic properties are known since olden days and has found wide application in modern medicine [2]. One of the most perspective species of this genus is *Lagochilus setulosus*. Perspective of this species has been described by I.E.Akopov who specified the high maintenance of lagochirzin in this species of plants. Lagochirzin - diterpene, possessing styptic property [3]. However, till now pharmaceutical properties of lagochirzin, containing in phytomass of *Lagochilus setulosus* remained not studied. Results of our previous researches had been created a substance of preparation and its hemostatic properties are studied. However, one of necessary development cycles of a new hemostatic biological preparation is studying of its harmlessness. In this connection, the purpose of the present research was definition of acute toxicity of a substance of Setulin preparation.

Materials and methods

The substance of Setulin preparation is presented for work in a kind of liophilic powder of light-cream colour, with a specific smell. As raw materials for reception of a dry extract served leaves, corollas and flowers of *Lagochilus setulosus*, collected in Kazgurt area of the South Kazakhstan oblast. The raw materials have been dried up to an air-dry condition, packed into double paper bags and stored in a dry cool place of 14 days. Further the dry extract has been received by lyophilization of a water extract of phytomass of plants *L.setulosus*.

For detection of parameters of acute toxicity has been used the method of probit analysis on Litchfield and Wilcoxon [4]. Acute toxicity of Setulin studied on 60 mice (males) in weight of 18-21 g. The keeping of experimental animals was carried out in standard conditions of vivarium on a usual diet at an easy access to water and food, in the conditions of normal temperature and light modes. Preparation Setulin introduced with the help of catheter in doses 1000 - 10000 mg/kg. Each dose was tested on 6 animals. The general duration of supervision over a condition of animals after introduction of an investigated preparation has made 14 days in conditions of vivarium.

Rating of the general condition of animals at substance introduction spent taking into account change of various behavioural reactions, the neuromuscular excitability, some vegetative functions.

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The data obtained as a result of experiment processed statically [5].

Results and discussion

By results of our researches it is established, that at oral introduction of substance of Setulin preparation at doses from 1000 to 5000 mg/kg does not render toxic influence on an organism of animals. All mice involved in experiment did not have symptoms of a acute poisoning. All animals remained active enough during all experiment. It is thus noted normal coordination of movements, standard reaction on external irritants, usual frequency and depth of respiratory movements, a normal consistence of faecal masses, frequency of urination and urine colouring and good appetite also has remained.

The increase in a dose of a substance of a preparation to 6000 mg/kg has caused small oppression of a physiological condition of animals which was expressed in fall of impellent activity of mice and short-term increase of breath. These behavioural symptoms of change of parametres of a physiological condition remained till the end of experiment. However, in these variants of experience death of animals was not marked. The further increase in a dose of a substance of a preparation has caused death of a part of experimental animals. Thus, the increase in number of the lost animals occurred directly proportionally to increase in a dose of a preparation. Apparently from figure 1, acute dose for Setulin preparation is 10000mg/kg. At this dose all experimental animals were lost within 24 hours.

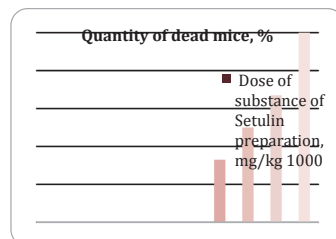


Figure 1. Results of researches of acute toxicity of Setulin substance preparation on mice

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Conclusion

Thus, it is established, that a dose, causing death of experimental animals at oral introduction (LD50) for substance of Setulin preparation is 7200 mg/kg. According to GOST 12.1.007 - 76 of Republic of Kazakhstan substance of Setulin preparation concerns substances of the fourth class of danger (low-hazard substances).

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