



RESEARCH ON THE PHARMACOLOGICAL ACTIVITY OF ISATIS TINCTORIA SEED OIL

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Relevance. *I. tinctoria* seed oil contains a number of bioactive components, including alkaloids, flavonoids, and phenolic compounds, which may have anti-inflammatory, antioxidant, antimicrobial, and antiviral effects. Studies of the pharmacological activity of the oil may provide new data for its use as a natural remedy for various diseases, such as respiratory tract infections, skin inflammations, wounds and burns.

Aim of the study: to study the wound-healing activity of "*I. tinctoria* seed oil" in the scientific laboratory of innovative pharmaceutical compounds at the Tashkent Pharmaceutical Institute.

Materials and methods: Wound healing activity was studied using a model of complete skin excision in mice. Experiments were conducted on 15 white inbred mice weighing 18–22 g, divided into three groups of 5 animals.

To simulate a wound defect in animals, a 1 cm diameter area of skin was excised from the dorsal region of the back under aseptic conditions. The wounds were not covered with bandages and remained open throughout the experiment.

The animals received the test samples for 16 days at a dose of 500 mg/kg in the form of 100% oil:

1. Control group – animals were administered sunflower oil at a dose of 0.01 ml/20 g of body weight.
2. Test group – animals received "*I. tinctoria* seed oil" (TashFarmi, Uzbekistan) at a dose of 500 mg/kg, in a volume of 0.01 ml/20 g.
3. The comparative group – animals received sea buckthorn oil at a dose of 500 mg/kg, in a volume of 0.01 ml/20 g.

Wound healing activity was assessed every other day throughout the experiment by measuring the wound area using the *ImageJ* programme.

The criterion for effectiveness was a reduction in wound area compared to the control group.

The results were processed using ANOVA variation statistics at a significance level of $p=0.05$, using GraphPad Prism version 8.0.0 for Windows, GraphPad Software, San Diego, California, USA.

Research results: In the control group, wounds healed more slowly compared to the experimental groups. On the 6th day, the wound area was 87.63%, and by the 16th day it had decreased to 7.38%. Complete wound closure was not achieved by the 16th day.

In the group receiving "*I. tinctoria* seed oil", wound healing was significantly faster. Already on the 6th day, the wound area decreased to 50.38%, and by the 12th day it was only 6.94%. Complete wound closure was observed on the 14th day, which indicates the pronounced wound-healing activity of this oil.

The group receiving sea buckthorn oil also showed a high rate of wound healing. On the 6th day, the wound area was 59.20%, and by the 10th day, it was 14.97%. Complete wound closure occurred by the 16th day.



Conclusion: The study showed that "*I. tinctoria* seed oil" has pronounced wound-healing activity, promoting complete wound closure by the 14th day. Sea buckthorn oil also accelerated healing, but the process was less intense, and complete closure of wounds was observed only by the 16th day. The results confirm the promise of madder seed oil as an effective wound-healing agent.