

**ADAPTOGENIC ACTIVITY OF THE AQUEOUS EXTRACT OF  
RHAPONTICUM CARTHAMOIDES (WILLD.) ILJIN RHIZOMES**

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*Rhaponticum carthamoides* (Willd.) Iljin is a valuable medicinal plant widely used in traditional and modern herbal medicine. Its rhizomes and roots contain a complex of biologically active compounds, including phytoecdysteroids (20-hydroxyecdysone), phenolic compounds, flavonoids, triterpenoids, and polysaccharides, which exhibit adaptogenic, antioxidant, immunomodulatory, and tonic properties. Despite numerous reports on the pharmacological activity of *R. carthamoides*, studies on the adaptogenic potential of aqueous extracts obtained from plants cultivated under the conditions of Northern Kazakhstan remain highly relevant.

The aim of this study was to evaluate the adaptogenic activity of an aqueous extract of *R. carthamoides* rhizomes by assessing its effect on the physical endurance of laboratory animals.

Adaptogenic activity was assessed by evaluating changes in the physical performance of animals using a forced swimming test. The experiments were conducted in accordance with the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes. Animals in the experimental group received the aqueous extract of *R. carthamoides* rhizomes intragastrically: a single administration at a dose of 10 mL/kg 1 hour before testing and repeated administration at a dose of 0.1 mL/kg once daily for 10 consecutive days, 1 hour before feeding. Animals in the control group received distilled water in the same volume.

A single administration of the aqueous extract did not produce a significant effect on the physical endurance of the animals. However, repeated administration for 10 days resulted in a marked improvement in physical performance, with swimming time increasing by 75% compared with the control group. These findings indicate that the adaptogenic effect of the extract develops after prolonged administration and is likely associated with the cumulative action of its biologically active constituents, particularly phytoecdysteroids, which enhance the body's resistance to physical stress.

In conclusion, the aqueous extract of *R. carthamoides* rhizomes exerts a stimulatory effect on the overall physical endurance of laboratory animals following repeated administration, confirming its adaptogenic properties and highlighting its potential as a natural source of adaptogenic agents.