

# COMPARATIVE STUDY OF BEARBERRY LEAVES POLYPHENOL EXTRACTS ANTIOXIDANT ACTIVITY

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The large family of Heather plants (Ericaceae), which include more than 3000 species of plants, is a widespread throughout the Earth. Despite the large amount of information concerning Heather plants, the data about composition and content of biologically active substances are of fragmentary character. From the entire family, only two species are considered the official medicinal plants – Bearberry (*Arctostaphylos uva-ursi*) and Ledum berg (*Ledum palustre*), but even in these plants, the list of indications for clinical use is limited. At the NUPh Pharmacognosy department the new technology of polyphenolic compounds extraction was developed, and were obtained aqueous and alcoholic extracts. The purpose of this work was to investigate the antioxidant activity of polyphenolic extracts from the Bearberry leaves.

The studies were carried out on male rats weighing  $180 \pm 15$  g, which were maintained under the standard conditions of NUPh vivarium. The rats were decapitated under urethane-chloralose anaesthesia. The liver was washed from the blood with cold physiological solution and homogenized in 0.05 M Tris-HCl buffer (pH 7.4). 50%, 90% alcohol and water extracts from Bearberry leaves in the dose of 50 and 100  $\mu$ M (recalculated to polyphenols) were introduced into the sample. Samples were incubated for 15 minutes at the temperature of 37°C. Antioxidant activity was determined depending of the diene conjugates (DC), hydroperoxides and TBA-reactants content *in vitro*. The protein content in the samples was determined using the Lowry method. Data was processed statistically.

During a research experiment it was found that in the presence of water extract was observed a decrease in the DC content by 8.2%, hydroperoxides by 13.5%, and TBA-reactants by 12.3%, but the effect was overseen only at a dose of 100  $\mu$ M. In the presence of 90% alcohol extract, the content of DC decreased by 26.4%, hydroperoxides – by 20.8%, TBA-reactants – by 13.9%. However, the dependence of the effect on the concentration of the introduced compounds was not found. The greatest efficiency was showed by the 50% alcohol extract, which reduced the DC content by 25.4%, the hydroperoxides – by 13.1%, and TBA-reactants – by 32.2%. Furthermore, it was revealed the dependence between antioxidant effect and the quantity of introduced polyphenolic compounds.

The obtained results indicate that all studied polyphenol extracts from Bearberry leaves revealed an antioxidant effect *in vitro*. The highest activity was shown by 50% alcohol extract; the least activity was demonstrated by the water extract of polyphenols.

Thus, the obtained results indicate the further study necessity of the obtained polyphenolic extracts antioxidant activity, as well as their effects on the antioxidant defense system functioning in the organism.