

ECOLOGICAL, BIOLOGICAL AND GEOGRAPHICAL STUDY OF THE RATIONAL USE OF THE RESOURCE POTENTIAL AND ENVIRONMENTAL PROTECTION

ANTIOXIDATIC ACTIVITY OF WATER EXTRACTS OF EARLY-FLOWERING PLANTS

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Application of curative herbs and pharmaceutical collecting on their basis in traditional and traditional medicine is especially relevant now that is caused by essential advantage of plants in comparison with chemical medicamentous medicines. The main thing from them – lack of the ghost effects and complex impact on an organism [1].

Early-flowering plants well grow and develop under the poor weather conditions that is bound to their antioxidatic system. Therefore it is important to investigate at these plants the maintenance of indexes of enzymatic and non-enzymatic antioxidatic system for further application on biological objects [2].

The work purpose – determine the indices of the non-enzymatic antioxidant system of early plant in the production of water eksrata.

Material and methods. The material for the study was early flowering plants. The dried parts in the shade before the air-dry state of the plants were ground to a particle size of 0.5–1.0 mm. Extracts of plants through models using distilled water. Antioxidant activity and activity of enzymes were determined by standardized biochemical and spectrophotometric methods [3].

Mathematical processing of the received results was carried out by methods of parametrical and nonparametric statistics with use of a package of the statistical Microsoft Excel 2003, STATISTICA 6.0 programs.

Results and their discussion. As appears from table 1, the largest content of the sum of phenolic connections, ascorbic acid is noted in extract of leaves of *Prímula véris* (ELPV). The activity of peroxide oxidation of lipids is reduced in ELPV in comparison with water extract of leaves of *Allium ursínium* (ELAU) twice.

In comparison with ELAU in ELPV the maintenance of the following indexes is increased: the sum of phenolic connections – by 2,16 time, ascorbic acid – by 3,32 times. In comparison with extract of leaves of *Allium schoenoprásium* (ELAS) in ELPV the maintenance of the following indexes is increased: the sum of phenolic connections – by 2,07 time, ascorbic acid – by 6,92 times.

The largest content of pigments of the photosynthetic device of plants is observed in ELPV: in comparison with ELAU the maintenance of a chlorophyll by 1,5 times, carotenoids – by 3 times is increased, in comparison with ELAS the maintenance of a chlorophyll is 4,36 times more, carotenoids – by 7,29 times.

Table 1 – The maintenance of indexes of non-enzymatic antioxidatic system in water extracts (1:10) leaves of early-flowering plants ($M \pm m$)

Index	Water extract (1:10)		
	ELAU	ELPV	ELAS
Diene conjugates, $\mu\text{mol/g}$	$0,29 \pm 0,011^2$	$0,46 \pm 0,013^1$	$0,28 \pm 0,003^2$
TBA, nmol/g	$7,92 \pm 0,35^2$	$3,82 \pm 0,18^1$	$1,73 \pm 0,32^{1,2}$
Sum of phenolic connections, mg/g	$8,98 \pm 1,52^2$	$19,36 \pm 1,82^1$	$9,36 \pm 0,74^{1,2}$
Sum of flavonoids, mg/g	$0,32 \pm 0,02$	$0,28 \pm 0,03^1$	$0,47 \pm 0,04^2$
Acidum ascorbinicum, mg/g	$18,77 \pm 0,18^2$	$62,45 \pm 0,69^1$	$9,02 \pm 0,13^{1,2}$
Chlorophyll, mg/g	$0,32 \pm 0,010$	$0,48 \pm 0,002^1$	$0,11 \pm 0,002^{1,2}$
Carotenoids, mg/g	$0,17 \pm 0,012^2$	$0,51 \pm 0,010^1$	$0,07 \pm 0,001^{1,2}$

The Note – ¹P < 0,05 in comparison with ELAU; ²P < 0,05 05 in comparison with ELPV.

The largest content of pigments of the photosynthetic device of plants is observed in ELPV: in comparison with ELAU the maintenance of a chlorophyll by 1,5 times, carotenoids – by 3 times is increased, in comparison with ELAS the maintenance of a chlorophyll is 4,36 times more, carotenoids – by 7,29 times.

Thus, on the content of endogenic antioxidants and a condition of the assimilatory device, the greatest antioxidatic the activity also has potential to counteract consequences of an oxidizing stress ELPV.

Conclusion. Thus, water extracts of early-flowering plants (1:10) have good antioxidatic system and can be used for increase resistance to stress of biological objects to adverse environmental factors.

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