

**In vivo studies regarding the antioxidant effect of certain vegetal extracts
on the stimulation of the antioxidant system in *Oncorhynchus Mykiss*,
in conditions of overpopulation**

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Abstract

The purpose of this paper was to evaluate the antioxidant effect of certain extracts obtained from indigenous plants (*Allium ursinum* and *Alliaria petiolata*) by introducing them in the diet of the rainbow trout reared in conditions of overpopulation in a recirculating system. At the end of the experimental period, the following investigations were accomplished: biochemical (MDA, TAC, GLU, TP, IgM), hematological (Ht, Hb, MetHb, E, VEM, HEM, CHEM) and biotechnological (SGR, FCR). The highest significant values ($p < 0.05$) of MDA, compared to the lots treated with vitamin E and *Allium* extracts, were registered in the muscles and liver of the fish in the witness lot not treated with extracts (the 2% version). In the liver, the significant increases of TAC, compared to the untreated witness lot, are in LotE ($p = 0.023 < 0.05$), in LotAllium ($p = 0.05 \leq 0.05$) and in LotAlliaria ($p = 0.01 < 0.05$). The hemoglobin has values between 7.73-7.76 g/dL in LotAllium and between 7.55-7.62 g/dL in LotAlliaria, both being lower than LotE. The HEM values are comparable among the lots, ranging between 69.92-70.15pg, while the CHEM value is higher in LotMN, compared to LotE, LotAllium and LotAlliaria. The IgM has a minimum value of 88.23mg/dL in LotAlliaria (5%) and a maximum value of 92.03mg/dL in LotAlliaria (2%). In both experimental versions, positive correlations were obtained between the SGR and the average values of TAC in the analyzed lots. The final conclusion is that the vegetal extracts of *Allium ursinum* and *Alliaria petiolata* used in our experiments can determine, in certain concentrations, the reduction of the stress induced by overpopulation in *Oncorhynchus mykiss*.

Abbreviations: CHEM – concentration of mean corpuscular hemoglobin, E – number of erythrocytes, FCR – Feed Conversion Ratio, GLU – glucose, Ht – hematocrit, Hb – hemoglobin, HEM – mean corpuscular hemoglobin, Ig M – immunoglobulin M, MDA – malondialdehyde, MetHb – methemoglobin, PT – total protein, SGR – Specific Growth Rate, TAC – Total Antioxidant Capacity, VEM – mean corpuscular volume.

Keywords: vegetal extracts, antioxidant effect, lipid peroxidation, rainbow trout, overpopulation.