THE EFFECT OF VACCINUM MYRTILLUS AND VACCINUM VITIS-IDAEA FRUITS EXTRACTS ON THE ANTIOXIDANT SYSTEM OF MAMALIAN ORGANISMS

Olariu Lucia¹, Mariana Pop², Alfa-Xenia Lupea², Camelia Tulcan¹, Ileana Brudiu²

¹Fac. de Medicina Veterinara Timisoara-Calea Aradului 119, Timisoara, ²Facultatea de Chimie si Ingineria Mediului, UP "Traian Vuia' Timisoara, Telbisz Carol 6, Timisoara

luciaolariu@yahoo.com

SUMMARY

The present paper deals with the study of some Vaccinium myrtillus and Vaccinum vitis-idaea fruits extracts effects on the antioxidant system of guinea pigs. Both extracts stimulated the antioxidant system of the cells: it doesn’t not effect the normal function of the liver and stimulates the absorption of calcium and phosphorus. Especially; Vaccinium myrtillus stimulates the haemoglobin synthesis and also the iron absorption. It is a much more antioxidant as Vaccinum vitis-idaea as there were registered lower levels of malondialdehyde (MDA) respectively higher concentration of reduced glutathione (GSH) in comparison with the Vaccinum vitis-idaea. In the same time lower activities of superoxid dismutase (SOD); glutathione peroxidase (G-px) and glutathione reductase (G-red) were registered in the treatment with Vaccinium myrtillus extract.

Free radicals; respectively reactive species of the oxigen (ROS) in physiological concentration are stimulating the development and the cell division. A mutation at cell level can be the cause of permanent deviation of the oxidative reactions with RSO development in excess. In very large doses; ROS lead to apoptosis. As there are quite few studies in this field; in the present work we study the antioxidant properties of some Vaccinium myrtillus and Vaccinum vitis-idaea fruits extracts on the antioxidant system of guinea pigs; as a possible oxidative stress barrier as both of the extracts contain antioxidant components as flavonoides; antocianines; etc.

The experiment was carried on 36 adult female guinea pigs (divided in three groups) and maintained in good physiological conditions. They were divided in three groups. Each group included 12 guinea pigs. L1- control; received tap water ad libitum during 14 days; L2 – received during 14 days 0.5 ml i.m. of the Vaccinium myrtillus extract; L3- received during 14 days 0.5 ml i.m. of the Vaccinium vitis-idaea extract After 14 days blood (on heparine); by cardiac punction and tissue samples were collected under general narcosis from L1; L2 and L3. The data are presented as means ± S.D. values. ANOVA; TTest were used.

The best antioxidant properties has the Vaccinium myrtillus extract as it maintained a normal function of the liver (GPT; GOT and GGT were situated in normal values) and stimulates the absorption of calcium and phosphorus; the haemoglobin synthesis and also the
iron absorption. Lower levels of MDA respectively higher concentration of GSH and lower activities of SOD; G-px and G-red were registered in comparison with the administration of Vaccinium vitis-idaea extract. The Vaccinium vitis-idaea has a higher prooxidant effect in 14 days of experiment.

1. Beutler E.; 1982; Red Cell Metabolism; a Manual of Biochemical Methods; New York; Grune and Stratton; 67-74
2. Ghergariu; S.; Cadariu; M.; Spanu; I.; 2000; Manual de laborator clinic veterinary. Bucuresti: All Educational; 45-90