

Age-related Changes in Rat Thymus Connective Tissue Influenced by Aronia Melanocarpa

Elena Daskalova¹, Slavi Delchev¹, Lyudmila Vladimirova-Kitova², Petko Denev^{3,4}, Stefka Valcheva-Kuzmanova⁵, Spas Kitov⁶, Marin Kanarev⁶

¹ *Department of Anatomy, Histology and Embryology, Faculty of Medicine, Medical University – Plovdiv, Plovdiv, Bulgaria*

² *Clinic of Cardiology, Faculty of Medicine, Medical University – Plovdiv, Plovdiv Bulgaria*

³ *Laboratory of Biologically Active Substances, Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Plovdiv, Bulgaria.*

⁴ *ITC-Innovative-Technological Centre Ltd., Plovdiv, Bulgaria.*

⁵ *Department of Pharmacology and Clinical Pharmacology and Therapeutics, Faculty of Medicine, Medical University Prof. Dr. Paraskev Stoyanov, Varna, Bulgaria*

⁶ *Student of medicine, Faculty of Medicine, Medical University – Plovdiv, Plovdiv, Bulgaria*

* Corresponding author e-mail: eli_das@abv.bg

The purpose of this study is to determine the influence of Aronia melanocarpa (AM) on macrophage and mast cell quantity and collagen fibres distribution in age-related tissue remodeling of rat thymus. Two control groups, young (CY) – 2 month-old and mature (CO) – 12 month-old, have been put on a standard diet. The rats in the experimental group (A) received 10 ml/kg AM juice daily. Histological, immunohistochemical, morphometric and statistical assays were performed. Supplementation with juice from AM resulted in a significant decrease in the amount of collagen fibres, the number of mast cells in interlobular connective tissue and the number of CD68 positive cells in the medulla of rat thymus. Our results show for the first time the effect of AM on the age remodelling of connective tissue in the thymus. These results support the beneficial potential of the nutrient treatment of age-related diseases.

Key words: Aging, thymus, stromal elements, Aronia melanocarpa, rats