THE EFFECT OF TWO ANTICOAGULANTS ON THE MORPHOLOGY OF ERYTHROCYTES IN DIFFERENT VERTEBRATE SPECIES

D. Cocan¹, Vioara Mireșan¹, Camelia Răducu¹, P. Uiuiu¹, Al. Giurgiu¹, T. Păpuc¹, R. Constantinescu¹, C. Lațiú¹*

¹University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Faculty of Animal Science and Biotechnologies
*Corresponding author, e-mail: calin.latiu@usamvcluj.ro

Abstract

Anticoagulants are a category of substances that inhibit blood clotting through various mechanisms. Due to this property, they are used to collect blood samples for a wide range of laboratory tests. The literature mentions that the use of anticoagulants produces morphological changes of erythrocytes, thus influencing results. In this study, we aimed to highlight the influence of anticoagulants on erythrocyte morphometry in different vertebrate species. Blood samples were collected from two species of higher vertebrates with anucleated erythrocytes (horse and rabbit) and two species of lower vertebrates with nucleated erythrocytes (bird and fish) in vacutainers with Heparin and EDTA, in a normal concentration and in double concentration. At the time of harvesting, control smears were performed. In order to be able to compare the effects produced by anticoagulants on the morphology of erythrocytes, they were evaluated morphometrically at intervals of 3, 6 and 24 hours after harvest. Using the Toup View software, the following characters were evaluated: length, width, surface and perimeter of erythrocytes (for species with anucleated erythrocytes), the same characters being evaluated in the nucleus (for species with nucleated erythrocytes). The data obtained were processed with statistical programs to highlight changes in erythrocyte morphology produced by anticoagulants.

Keywords: blood cells, length-width ratio, cell surface, shape, vacutainer