

## Comparative analysis of hematological parameters and blood compatibility in different bird species

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### **Abstract**

*Birds seem to survive and recover much faster than mammals after acute blood loss. Their ability to tolerate severe bleeding may be due to the lack of automatic responses to irreversible shocks, faster transfer of extracellular fluids into the vascular space and faster mobilization (at 12 hours) of a large number of immature erythrocytes after significant blood loss; for example, pigeons return to normal hematocrit only 7 days after 60% of the blood has been drawn, without any clear clinical signs. In this study our objectives were the comparative analysis of hematological parameters in samples from domestic birds of different species and the investigation of the possible compatibility between the blood of chickens and palmipeds. The investigations were carried out between October 2018 - May 2019 in the Physiology Laboratory of the Faculty of Veterinary Medicine, CLUJ-NAPOCA, on blood samples collected from a batch of 23 birds, composed of: 9 chickens, 5 turkeys, 4 ducks, 2 geese, 1 quail, 1 pheasant, 1 pigeon.. Blood samples were taken from the basilic vein of each bird and collected on an EDTA tube. Comparative hematological analyzes included the determination of the erythrogram parameters (total number of erythrocytes, hematocrit, hemoglobin concentration and mean erythrocyte constants) and leukogram parameters (total number of leukocytes and proportions of leukocyte subpopulations). In order to evaluate and analyze the intra- and interspecific blood compatibility, 110 Crossmatch reactions were performed, 55 for the major test and 55 for the minor test.. The hematological results, interpreted comparatively on batches and species, showed significant variations at both individual and species level. We also noticed a major inconsistency between the values of the mean erythrocyte constants and the main hematological parameters. The results regarding the evolution of intra- and interspecific blood compatibility revealed the absence of preformed isoantibodies against the various antigens of the blood group systems of the tested species. In conclusion, 14.54% positivity proportion outlined the level of the incompatibility rate for heterologous combinations.*

**Keywords:** birds, hematology, blood compatibility.