

DETERMINATION OF THE MAIN HAEMATOLOGICAL INDICATORS IN THE HARE COMPARED TO THE RABBIT

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Abstract

Estimation of haematological parameters represents arguments regarding the establishment of physiological status and the health state of the two studied species, taking in consideration the interpretations of the benefits represented by growing conditions.

There have been realized comparisons between the values obtained at hare and rabbit to facilitate faultless result interpretation.

Blood gathered from hare and rabbit was analyzed and determinations were made with Abx Micros vet ABC haematological analyzer.

The interpretation of the obtained results shows a difference between the two species regarding the studied haematological values.

In conclusion the studied individuals don't show modifications which could reflect damages of health state.

Key words: haematological profile, hare, rabbit

INTRODUCTION

Intrinsic blood link with the internal organs causes answers and starts specific physiological mechanisms, sensitive to the changes of the internal and external stimuli.

The organism homeostasis expression can be interpreted and the hematologic status of the animals examined, fact that led this study.

The measurement values of haematological parameters are a part of a broader research program that dignifies the correlations between physiological indices and growth and behavior performance of the hare and rabbit [1].

The interpretations parallelism between the two species derives from the increased interest of the consumer market for an aliment with a nutritive food value and considered a delicacy in culinary preparing [3].

The figurative items of blood fulfill an important role in maintaining the functional unit of the animal organism. In the interrelationships with the external environment, the changes in the state of balance of the composition of internal environment, necessary to maintain life, tends to be quickly corrected by appropriate

reactions from certain organs, both in physiological and pathological conditions [2]. Because of its varied functions and the direct link that it has with all the organs, the blood reacts sensitively to the changes produced in the body by the internal and external factors.

MATERIAL AND METHOD

The biological material used was a 100 live hare extracted from the hunting fund to supply for export. Harvesting was done at 24 hours after catching and lots formation, which excludes the existence of stress.

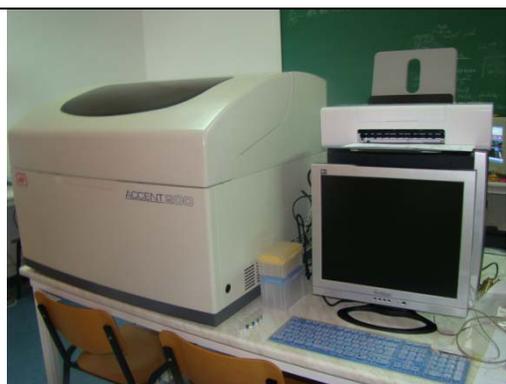
Values recorded were compared with the haematological data obtained from rabbits reared at the Biobase USAMV Iași.

The exam of cellular blood components has been conducted on biological material collected in vacuum test tubes on substrate of anticoagulant (EDTA). The blood harvesting from the both populations of rabbits was made from the auricular vein and the saphenous vein.

Determinations were made with the hematologic analyzer - ABX Micros VET ABC and the biochemical analyzer - Accent 200.



Hematologic Analyzer ABX Micros VET ABC



Biochemical Analyzer - Accent 200

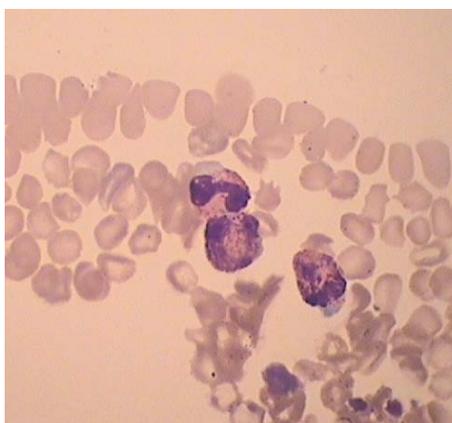
The studies regarding blood cells morph structure were made through *May-Grunwald Giemsa* smear processing and colorations.

RESULTS AND DISCUSSION

The erythrocytes have particular importance in physiology; their representation is about 5% of body weight. The examinations of blood

smear highlights anisocytosis, polychromatic cells, schizocytes, stomatocytes, nucleus red cells (1 or 2 reported 100 white cells) and Howel – Jolly corpuscle.

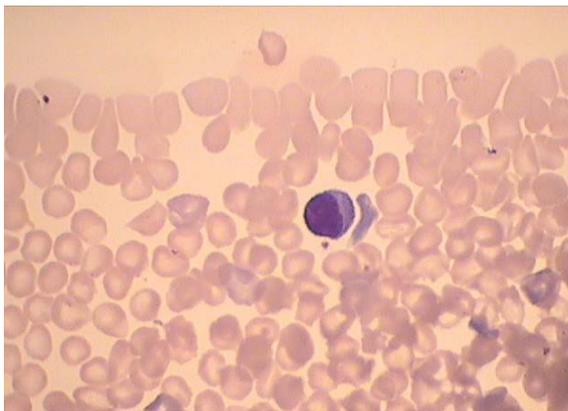
The morphology of white blood cells may serve to establish a differential diagnosis and the physiological status of the individual.



Rabbit neutrophils

In rabbit the neutrophils are rounded cells with a diameter of 10-15 μ m, at which the nucleus is normally different segmented and colored in dark blue, the segments being linked together by fine filaments of chromatin. The cytoplasm appears clear, having two types of granulations: small granulations, fines that are colored in pink and large granulations colored in dark red.

The analyzed smears from the two types of rabbits, revealed two distinct populations of lymphocytes: small (7-10 μ m) and large (10-15 μ m). Lymphocytes cells are round or slightly oval, with oval nuclei, deep violet, the cytoplasm is little or absent in the small lymphocytes and abundant and basophiles in the large ones. A part of the large lymphocytes may present a clear halo around the nucleus and even have a few granules azurophyles.



Rabbit lymphocytes

The studied eosinophiles from rabbit had a diameter of 10-16 μm , red nucleus, bilobate or horseshoe shaped. The cytoplasm presents numerous granules, which causes the pink color and the appearance of a foamy cell. The

importance of eosinophiles expression is the histamine removal, which suggests that they play an important role in controlling allergic reactions.



Rabbit eosinophiles

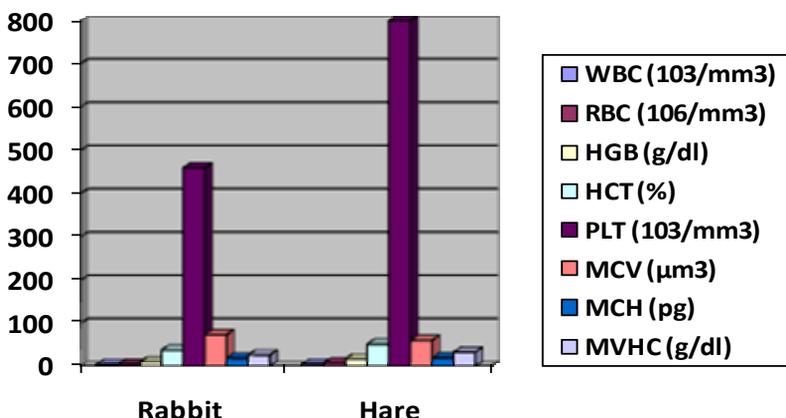
The suppression of various biological agents intervention, determines the activation of a complex and efficient defense system composed of leucocytes, macrophages and lymphoid tissue. The cells of this system prevent and intervene in the combat, through a concomitant and successive phagocyte action of the invade and development agents

of antibodies and lymphocytes specific sensitized.

The leukocytes, the mobile and circulating elements of this complex system of defense have the ability to discover the invade agents and destroy them through specific mechanisms to each leukocyte type.

Table 1
 The haematological values determined at the studied populations

Specification	Rabbit	Hare
WBC ($10^3/\text{mm}^3$)	4,5	5,7
RBC ($10^6/\text{mm}^3$)	5,20	8,60
HGB (g/dl)	10,4	17,9
HCT (%)	38,6	52,0
PLT ($10^3/\text{mm}^3$)	460	800
MCV (μm^3)	74	61
MCH (pg)	19,9	20,6
MVHC (g/dl)	27,0	33,7



By continuous adaptation of the erythropoiesis and erythrolysis the physiological variations in the number of erythrocytes are minimal.

The concentration of hemoglobin, as an indicator of pigmentation respiratory, reflects increased value for those identified at the hare as a result of sustained muscle work.

CONCLUSIONS

1. From the comparison of the haematological values between the analyzed species shows no major differences regarding the quantitative variations of the main studied indicators haematological.

2. From the morphological point of view there are no variations on the structure and morphology of the figurative items pursued,

between the two species.

3. The Values located at the upper limits of the total number of erythrocytes, quantity of hemoglobin, haematocrit and hemoglobin concentration reflects changes in the sense of enhancing the anabolic metabolism in response to food ingestion and recovery.

REFERENCES

Books

- [1] Kathleen P. Freeman, *Veterinary cytology*, Manson Publishing, 2007
- [2] Scholem, O.W., Jain, N.C., Carroll, E.J., *Veterinary Hematology* – Lea and Febiger, Philadelphia, 1975.
- [3] Whithers Philip, C., *Comparative animal physiology*, Thamsom Learning, USA, 1992.