

CHARACTERISATION OF THE PHYSIOLOGICAL STATUS OF HARE HERDS

Il. Mihalache^{1*}, M. Munteanu², Roxana Lazăr², P.C. Boișteanu²

¹Transilvania University of Braşov, Romania

²University of Agricultural Sciences and Veterinary Medicine Iași, Romania

Abstract

The populational decline of hares that come from cynegetic funds in Romania requires a thorough study of physiological status to characterize the environmental impact on herds.

Modern methods for physiological assessing provides the opportunity for a haematological and biochemical screening of organisms studied. Determinations were made on blood counts coming from healthy animals and also over some individuals suffering from coccidiosis collected from cynegetic funds.

Biochemical analysis from blood tissue have completed the physiological status, allowing an accurate interpretation of the data obtained.

The results allowed us to assess the metabolic profile of wild rabbits reared on various cynegetic areas in Romania highlighting the possible nutritional imbalances and metabolic ones or different pathologies.

Key words: hare, physiological status, haematological, biochemical

INTRODUCTION

The intrinsic link causes blood to internal organs trigger responses to specific physiological mechanisms, sensitive to changes in internal or external stimuli.

Body homeostasis expression can be interpreted also by hematologic status of analyzed animals, which led to the study conducted.

Determination of the haematological parameters are part of a broader research program that emphasizes correlations between physiological indices and the growth performances and behavioral of hares and rabbits.

Interpretations parallelism between the two species derive from increased interest of the consumer towards a food with nutritional value, and considered as delicacy in culinary preparation.

Elements of the blood play an important role in maintaining the functional unit of the animal organism. On the interrelationships with the external environment, changes in

equilibrium state on internal environment composition necessary for maintaining the life, tends to be quickly corrected by appropriate reactions from certain organs, both in psysiological and pathological conditions. Due to its functions so diverse and the direct link that has with all the organs, the blood reacts sensitive to changes produced in the body by internal and external factors.

MATERIAL AND METHODS

The biological material used was represented by 100 hares, alive, harveted from hunting funds in order to deliver for export. Harvesting was done 24 hours after capture and batch formation, which excludes the existence of stress.

The registered values were compared with the haematologic dates obtained from rabbits raised in our university.

Examination of blood cellular components was performed on biological material harvested in vacuum tubes on anticoagulant substrate (EDTA). Blood collection in rabbits from each group was made from the ear vein and saphenous vein.

*Corresponding author: paulb@uaiasi.ro

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Measurements were made with haematological analyzer – ABX Micros VET ABC and biochemical analyzer - Accent 200.

RESULTS AND DISCUSSIONS

Biochemical exam of the blood allows practicing preventive medicine on the basis of surveillance tests, in order to take timely effective measures to prevent clinical deficiencies installation.

Currently advances in biochemistry field allows quantitative investigation of the constituents from the different tissue and humoral structures.

In addition to the assessment and remediation of nutritional - metabolic deviations, biochemical tests allows anticipating and sometimes avoiding their occurrence through measures and appropriate actions.

Biochemical exams allow early recognition, paraclinical of biochemical abnormalities, which gives the possibility of metabolic monitoring of large herds, with early adoption of nutritional corrective measures.

Laboratory biochemical exam in nutritional and metabolic diseases, besides being essential to the positive diagnosis, it confers a quality of greatest significance, namely paraclinical detection capability, which allows the practice of preventive medicine, based on surveillance tests.

Although these surveillance tests express the metabolic status of animals at the time of sample harvesting, they can be helpful both to highlight nutritional or infectious imbalances caused earlier as well as for anticipating of metabolic disorders, in order to prevent them through the adoption of sanitary veterinary conduct.

Table 1 Variation of the hematological indicators at hare

No.	Healthy specimen	Specimen diagnosed with coccidiosis
WBC ($\times 10^3/mm^3$)	4.2	2.9
RBC ($\times 10^3/mm^3$)	8.9	9.4
HB (g/dL)	19.3	21.8
Ht (%)	55.3	62.3
MCV (μ^3)	60	66
MCH (pg)	20.8	23
MCHC(g/dL)	34.3	34.7
PLT ($\times 10^3/mm^3$)	175	347
Segmented heterophils (%)	42	68
Lymphocytes (%)	12	30
Monocytes(%)	4	2
Eosinophils (%)	-	16

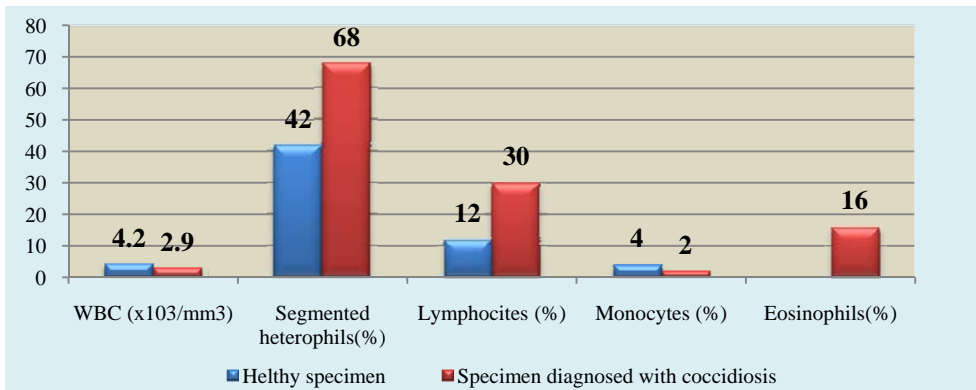


Figure 1 The variation in leukocyte count

Leukocytes, mobile elements, circulating, of this complex defense system has the ability to discover and destroy invading agents by leukocyte type-specific mechanisms.

Analysing the results obtained we can observe low levels of leukocytes with a remarkable percentage of eosinophil and

neutrophil from the leukocytes series. Granulocytopenia (2.9×10^3) is due to the exaggeration of diapedesis in the inflammatory process. Regarding the red series, is noticed an increase in hemoglobin (21.8 g/dL) and in hematocrit (62.3%) at specimen diagnosed with coccidiosis.

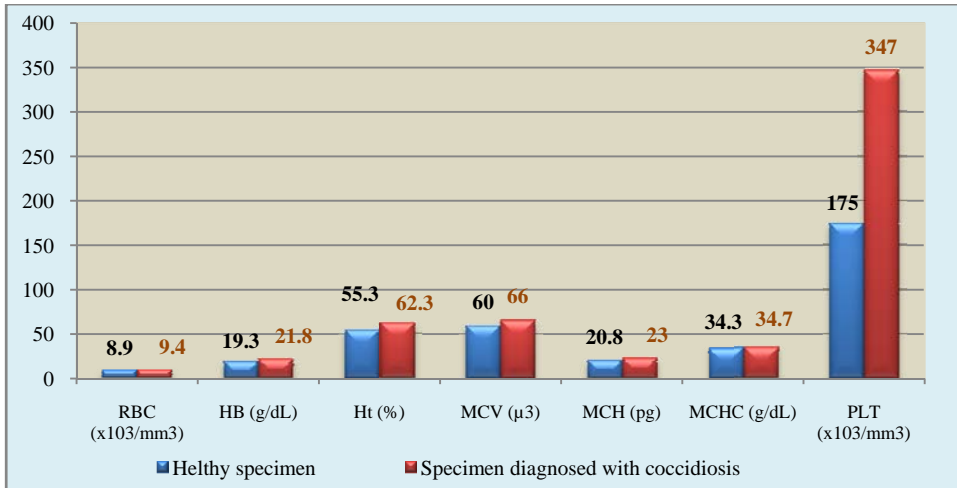


Figure 2 The variation of the erythrocytes number and erythrocyte constants

By continuously adapting the rate of erythropoiesis and erythrolyses, physiological variations in the number of erythrocytes are minimal.

Hemoglobin concentration, as an indicator of respiratory pigment, reflects high values for those determined in the hare as a result of sustained muscular labor.

Biochemical laboratory exams were also aim to establish limits for biochemical variation in hares compared with those in rabbits to determine the nature of evidence allegedly poached specimens.

Table 2 – Values found in hare blood biochemical analysis

No.	GLUC. mg/dl	GOT U.i.	GPT U.i.	Alk. Phos. U./l.	GGT U./l.	Amil. U./l.	Lipids mg/dl.	Cholesterol mg/dl	Mg mg/dl.	P mg/dl.	Urea mg/dl.	β-carot y/dl	Vit. E y/ml
1	184	51	28	2	13	4738	346	40	3.65	3.56	32	36	1.72
2	250	47	25	10	10	3031	153	22	3.28	2.9	36	12	2.7
3	240	19	9	6	4	2652	141	20	4.49	3.22	32	28	4.1
4	-	66	39	5	20	3806	203	28	4.6	Insuff. serum	Insuff. serum	Insuff. serum	Insuff. serum
5	-	35	16	6	5	3031	139	25	Insuff. serum	Insuff. serum	Insuff. serum	Insuff. serum	Insuff. serum
6	-	62	36	5	15	4612	377	45	4.05	Insuff. serum	Insuff. serum	Insuff. serum	Insuff. serum

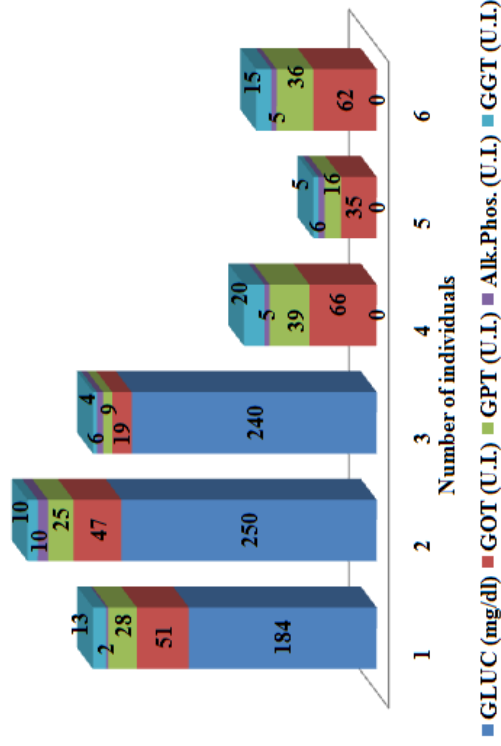


Figure 3 Results of biochemical analysis of hare blood

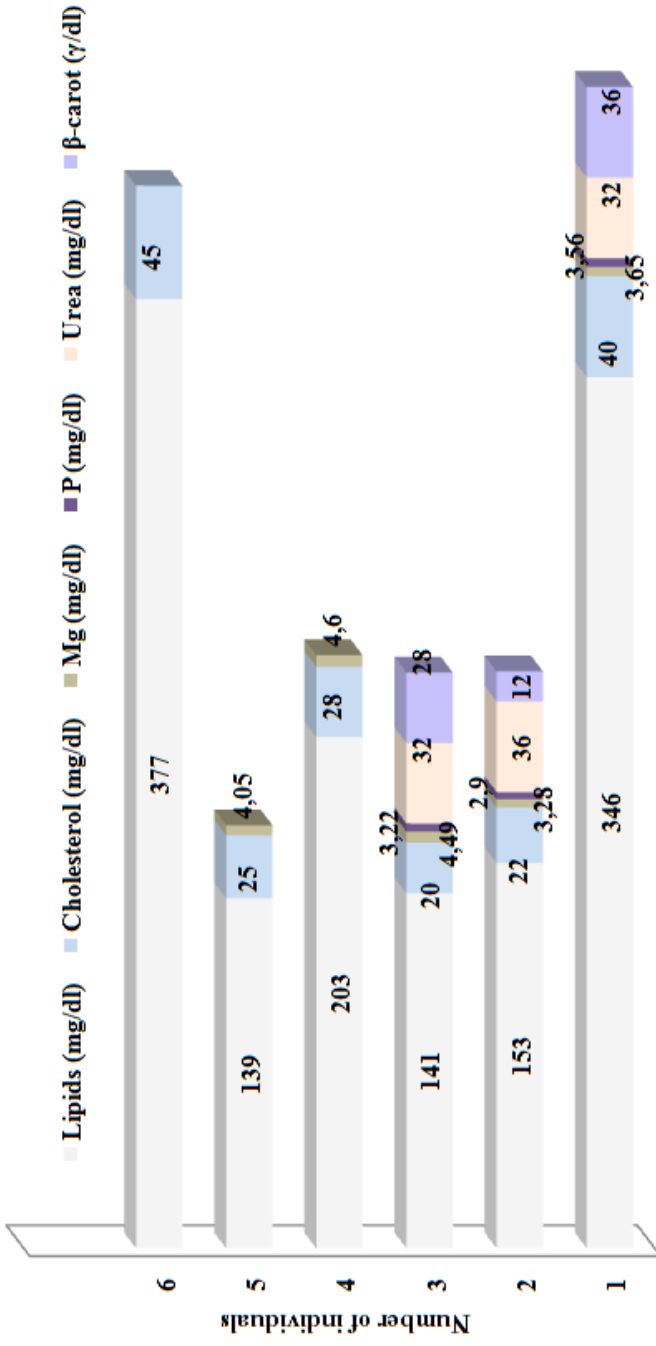


Figure 4 Results of biochemical analysis of hare blood (continuation)

CONCLUSIONS

Hematological exam revealed the physiological status of individuals. Values registered in sick rabbits confirmed the parasitological diagnosis.

The obtained results were consistent with the physiological state of the individual and the geographical area where the harvesting was performed.

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