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CERCETĂRI COMPARATIVE ASUPRA PROFILULUI METABOLIC AL RASELOR DE IEPURI DE CARNE CALIFORNIAN, NEOZEELANDEZ ALB, CHINCHILLA MARE ŞI AL HIBRIDULUI F1 NZCH

COMPARATIVE RESEARCHE REGARDING METABOLIC PROFILE OF THE CALIFORNIAN, NEW ZEALAND WHITE, GRAND CHINCHILLA MEAT RABIT BREEDS AND THE F1 NZCH HYBRIDS

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Precious biological characteristics of rabbits make their breeding a very profitable occupation. The rabbit meat, organoleptically same to the white meat, is rich in proteins, but low in fats. Biological researched done in direction to elucidate the biochemical systems that are the basis for organism physiological processes, have revealed that the level in which this process are develop directly influence the rabbits productivity capacity. 60 rabbit's heads was used as biological material, distributed in: 15 Californian, 15 New Zeeland White, 15 Grand Chinchilla and 15 F1NZCH hybrids obtained from cross-breeding the New Zeeland White as maternal form and Grand Chinchilla as paternal form. Blood was sampled from the rabbit and was biochemical analyzed. The studied indices were: total protein, albumin, urea, uric acid, creatinine, total bilirubine, cholesterol, triglyceride and glucose. The experimental lot formed from F1 NZCH hybrids registered a concentration of 2.1 mg/dl uric acid, and in the other three lots the concentration was under 2 mg/dl. In all four lots, uric acid value was in normal limits. The determined creatinine registered very low values, under 1 mg/dl, at the low limit of reference values. At hybrids from New Zeeland White as maternal form and Grand Chinchilla as paternal form, in equal environmental conditions, the serum biochemical analysis haven't registered significant differences compared to pure breeds individuals.

Key words: Californian, New Zeeland White, Grand Chinchilla, hybrids, blood chemistry, serum

Introduction

Precious biological characteristics of rabbits make their breeding a very profitable occupation. The rabbits exploited very well the vegetal forages, and can be raised in small places, have a high precocity and prolificacy. The offspring's have an alert development degree; they can be exploited at 2.5 - 3 month old. A

female rabbit can produce 60-70 meat kg / year and a series of secondary products, this is why the rabbit is considered a „protein factory"[1].

The rabbit meat, organoleptically same to the white meat, is rich in proteins, but low in fats. Beside this, the contained mineral salts and vitamins make the rabbit meat necessary in every human category alimentation. Due to these qualities is followed to increase the rabbit meat production concomitantly with a maximum economical efficiency. Follow to a simultaneous or isolate action of genetic amelioration factors, improvement of exploitation and breeding conditions of mother effective the rabbit production can increase [2]. One of the most frequently used amelioration system is one thru crossing because his aim is to obtain immediate economical effects through the use of combinative capacity in heterozis effect manifestation [3].

Biological researched done in direction to elucidate the biochemical systems that are the basis for organism physiological processes, have revealed that the level in which this process are develop directly influence the rabbits productivity capacity [4].

Materials and Methods

60 rabbit's heads was used as biological material, distributed in: 15 Californian heads, 15 New Zeeland White, 15 Grand Chinchilla heads and 15 F1NZCH hybrids heads obtained from cross-breeding the New Zeeland White as maternal form and Grand Chinchilla as paternal form. Blood was sampled from the rabbit and was biochemical analyzed. 1 ml blood was sampled from each rabbit and put into Eppendorf tubs with capacity of 1.5 ml for biochemical analysis, being necessary 150-300 µl quantity of serum. Blood samples were kept in thermostat at 37°C for obtaining serum. The biochemical analyze was done using FullyVet biochemical analyzer. The studied indices were: total protein, albumin, urea, uric acid, creatinine, total bilirubine, cholesterol, triglyceride and glucose.

The rabbits were raised in equal environmental and feeding conditions. The feed administered was complete granulated forage.

Results and Discussions

Table 1 presents the data obtained after analyzing the serum samples. The results represent the absolute average of analyzed parameters value.

Total serum protein values from two of the experimental lots were in normal limits, respectively 5.0-7.5 g/dl. In the lot formed by Grand Chinchilla breed and F1 NZCH hybrids, the total protein registered a value little lower then the reference ones, without having a pathologically significance.

In all four experimental lots, the albumin had normal values. Urea registered values higher then the normal limits, so are no possibilities for the rabbits to manifest renal insufficiency, tumors, and irradiations, syndromes with hydroelectrically disequilibrium or to beneficiate of an excessive addition of protein. In all the lots, albumin had normal values.

Table 1

The results of biochemical analyze of serum samples

Analyzed parameter	Californian	New Zeeland White	Grand Chinchilla	F1 NZCH hybrids	Reference values[5,6].
Total Protein	5.15 g/dl	5.04 g/dl	4.43 g/dl	4.29 g/dl	5.0 – 7.5 g/dl
Albumin	2.66 g/dl	2.78 g/dl	2.76 g/dl	2.65 g/dl	2.7-4.6 g/dl
Urea	35.9mg/dl	10.2mg/dl	11.69mg/dl	30.2 mg/dl	54.6-153.15 mg/dl
Uric acid	1.4 mg/dl	1.5 mg/dl	1.8 mg/dl	2.1mg/dl	1-4.3mg/dl
Creatinine	0.63 mg/dl	0.85 mg/dl	0.72mg/dl	0.85mg/dl	0.5-2.6 mg/dl
Total Bilirubine	0 mg/dl	0 mg/dl	0 mg/dl	0 mg/dl	0-0.75 mg/dl
Cholesterol	24 mg/dl	20 mg/dl	20 mg/dl	75 mg/dl	10-80 mg/dl
Trigliceride	65 mg/dl	47 mg/dl	37 mg/dl	53 mg/dl	122.5-154 mg/dl
Glucose	141 mg/dl	124 mg/dl	132 mg/dl	102 mg/dl	75-150 mg/dl

F1 NZCH hybrids lot registered a 2.1 mg/dl uric acid concentration; the others three lots the uric acid concentration was in normal limits. Creatinine determinate in all four lots registered lower values, under sub 1 mg/dl, at the inferior limit of reference values. The total bilirubine was absent in all four lots. F1 NZCH hybrids had registered an increase of cholesterol to 75 mg/dl, value situated at the top normal limit values (10-80 mg/dl) without having pathologically significance.

The determinate triglycerides in the four lots had much closer values but lower then the reference values (122.5-154 mg/dl) found in specialty literature.

The determined glucose at the individuals belonging to the pure breeds (141 mg/dl, 124 mg/dl and 132 mg/dl) had similar values and at the hybrids F1 NZCH had slightly lower value (102 mg/dl). To all the lots studied the serum glucose was within the normal limits (75-150 mg/dl).

Conclusions

The hybrids had registered an increase in cholesterol value, compared to the pure breeds but within the normal limits. The cholesterol value at hybrids was 75 mg/dl and fore pure breeds was 24 mg/dl for Californian breed, 20 mg/dl for White Newzeeland and for Grand Chinchilla.

In hybrids obtained by cross-breeding New Zeeland White as maternal breed form and Grand Chinchilla as paternal breed, kept in similar environmental and feeding conditions, serum biochemical analyze didn’t reveal differences compared with the pure breed individuals.

At all the lot’s studied the serum parameters analyzed (Total Protein, Albumin, Urea, Uric Acid, Creatinine, Bilirubina Total, Cholesterol, Triglyceride and Glucose) were between the normal limits

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