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Breeds Effect on the Serum Biochemical Indices of Rabbit Buck

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Abstract

Serum biochemical parameters of the rabbits breed were evaluated. A total of 36 rabbits were used for this study. These consisted of 12 rabbits New Zealand Red, New Zealand White and Chinchilla each of rabbit genotypes. There were significant ($p < 0.05$) differences between the genotypes in some parameters like: Total protein, Albumin, Uric acid Urea, Glucose and Phosphorus of the genetic groups. The New Zealand red genotype however, had the highest in the parameters compared to other rabbit genotypes. The results on serum biochemical characteristic of the rabbit genotype could be used in the classification of rabbit into genetic group for adaptive and product purpose.

Keywords: Rabbit buck, serum indices, New Zealand Red, New Zealand White and Chinchilla

Introduction

Rabbits exhibit an exceptionally high phenotypic diversity; more than 200 breeds are recognized worldwide (Chorro *et al.*, 2009). This diversity is utilized for a wide variety of laboratory studies. In a few cases, however, this variability leads to difference in the normal values of important physiological parameters, such as haematologic and biochemical parameters (Ozkan *et al.*, 2012).

This study assessed breeds effect on the serum biochemical indices of rabbit buck

Materials and Methods

Duration of experiment and management of the rabbits: A total of 36 rabbits were used for this study. These consist of 12 rabbit's breeds each. The genotype is America Standard Chinchilla (CHIN), New Zealand Red (NZR) and New Zealand White (NZW). All rabbits were subjected to the same management practice throughout the experimental period. Medication was also carried out accordingly against stress and disease. The Rabbits Were given *ad libitum* access to commercial diet and clean water were given regularly. The experiment was carried out for a period of sixteen (16) weeks.

Feeds and Feeding: The rabbits were fed *ad libitum* with grower's mash containing 16.80% Crude protein, 2823 Kcal/kg Metabolizable energy will be fed from 15 – 28 weeks of age. Clean water was supplied continuously *ad libitum* throughout the experiment.

Blood sample collection: Blood sample was collected before and after the end of the experiment. The birds were fasted over night and blood was collected from the Jugular veins. Specimen for anticoagulant free tubes was used for collecting blood samples for biochemical analyses. The blood samples were analysed using routinely available clinical methods. Serum protein, albumen, globulin and urea were analysed using sigma assay kits, while glucose and creatinine were determined according to Slot (1965), uric acid according to Henry *et al.* (1957) and cholesterol according to Roschlan *et al.* (1974).

Experimental design and statistical analyses: All data obtained were subjected to analysis of variance to investigate the effect of genotype /breeds on serum biochemistry, using the General Linear Model of SAS (1999). Duncan's Multiple Range Test was used to separate the means that are significantly difference (Gomez and Gomez, 1984).

Results and Discussion

The serum biochemical parameters of these rabbits genotype is presented in Table1. The mean values of total protein, albumin, urea, cholesterol, creatinine, calcium and phosphorus of the genetic group were affected by genotype. However, the New Zealand red genotype had a significantly higher ($p < 0.05$) effect in all the parameters examined. The present findings are inconsistency with the report of earlier workers (Mitraka and Rawnsley, 1981; Njidda and Isidahomen, 2009). This difference may be related to species and the effect of the breed and season. These differences may originate from animal, species, environment temperature, age, sex,

hormonal changes and the seasonal changes in food intake. In conclusion, we have demonstrated the effect breeds/genotype on some biochemical parameters in rabbits. We hope that our findings will be helpful when interpreting laboratory results in rabbits.

Table.1: Effect of serum biochemical parameters as affected by Genotype traits of matured buck

Genotype	Chinchilla	New Zealand white	New Zealand red
Total protein (g/dl)	6.75±0.25 ^a	6.13±0.03 ^b	6.93±0.12 ^a
Albumin (g/dl)	3.68±0.09 ^b	3.40±0.00 ^b	4.50±0.18 ^a
Globulin (g/dl)	3.18±0.14 ^a	2.80±0.00 ^b	1.93±0.08 ^c
Uric acid (ml)	4.75±0.25 ^a	4.00±0.00 ^c	7.25±0.33 ^a
Cholesterol (mg/dl)	195.00±0.37 ^a	194.00±0.00 ^a	19583±1.63 ^a
Urea (mg/dl)	38.25±0.13 ^b	38.00±0.00 ^c	40.75±0.25 ^a
Creatinine (mg/dl)	1.28±0.03 ^a	1.28±0.03 ^a	1.25±0.02 ^a
Glucose (mg/dl)	181.75±0.54 ^b	180.00±0.00 ^c	185.92±0.84 ^a
Calcium (mg/dl)	9.70±0.04 ^a	9.60±0.00 ^a	9.42±0.16 ^a
Phosphorus (m/dl)	5.50±0.04 ^a	5.40±0.00 ^b	5.55±0.02 ^a

Means in the same row with different superscripts are significantly different (p<0.05)

Conclusion

According to the results of current experiment, it was found that all the parameters examined had effect on the genotype/breed on blood serum biochemical.

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