Influence of the temperament of water buffaloes on the serum lipid levels

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Introduction

Lipids plays a fundamental role in the energy metabolism of ruminants. However, the profile and complexity of the different lipid pathways which can be affected by animal temperament in different species are still unknown and deserve further investigation.

Objective

Evaluate the effect of the temperament on serum lipid levels of water buffaloes in growing phase in feedlot.

Material and Methods

- ✓ 75 animals of 3 genetic groups (GG) of water buffaloes (n=25 for each GG);
- ✓ GG: Jafarabadi, Mediterranean, and Murrah;
- ✓ 390±32 days of age;
- ✓ 310±61.27 kg of initial body weight.
- ✓ On day 0:
  - Temperament classification:
    Temperament score (TSc): mean of the sum of the scores of the time of entry into the squeeze chute (1 to 5: 1=greater time spent for entry; 5=less time spent for entry) and the exit velocity score (1 to 5: 1=lower speed; 5=higher speed);
    The animals were categorized:
    Adequate (ADQ; TSc≤3) or excitable (EXC; TSc >3).
- ✓ On days -28, 0, and 84:
  - Blood samples were collected and evaluated for serum levels of:
    - total cholesterol;
    - triglycerides;
    - high-density lipoprotein (HDL);
    - low-density lipoprotein (LDL);
    - very low-density lipoprotein (VLDL);
  - colorimetric enzymatic analyses performed by commercial kits.
- ✓ Statistical analyses:
  - MIXED procedure in SAS;
    - fixed effects: GG, temperament, day, and the resulting interactions;
    - term day was used for repeated measures in time;
  - Correlation analysis - CORR procedure of SAS.

Results

Table 1. Means, probabilities, and correlation coefficients for serum lipid levels of water buffaloes in growing phase in feedlot and classified according to temperament.

	Temperament				*Correlation*
Serum variables, mg/dL	**Adequate**	**Excitable**	**SEM**	***P-value***	***TSc***
Total cholesterol	65.95	70.96	2.33	0.04	ns
Triglycerides	16.57	17.54	1.17	0.41	r = 0.32; P < 0.01
High-density lipoprotein	35.79	36.90	1.54	0.47	ns
Low-density lipoprotein	26.74	30.40	1.57	0.02	r = 0.20; P = 0.09
Very low-density lipoprotein	3.38	3.55	0.23	0.46	r = 0.33; P < 0.01

SEM = standard error of means; TSc = temperament score; r = correlation coefficient; P = significance considered if P ≤ 0.05 and tendency if P > 0.05 e P ≤ 0.10; ns = non-significant correlation.

Genetic groups of water buffaloes used in the study: Jafarabadi, Mediterranean, and Murrah, respectively.

Highlights

- ✓ There were no interactions effects for the variables evaluated;
- ✓ ADQ animals showed lower levels of total cholesterol and LDL than EXC animals;
- ✓ There was no effect of temperament for the triglycerides, HDL, and VLDL;
- ✓ Positive correlations were verified between:
  - TSc and triglycerides;
  - TSc and VLDL;
  - Tendency was detected between TSc and LDL.

Conclusions

There are differences in serum lipid levels between water buffalo temperaments which deserves further investigation.

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