COMPARATIVE ANALISIS OF INDICATORS OF HOMEOSTASIS OF DOMESTIC ANIMALS (DOGS)

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Statistical analysis of the results of biochemical studies of blood serum of animals helps to determine the quantitative and qualitative characteristics, to establish the frequency of occurrence (repeatability) of the given parameters.

Also, the analysis of indicators can reveal the presence of links between parameters; evaluate them reliably, ensuring in the future the reliability and timeliness of forecasting.

A biochemical tests of dog blood included the determination of the main 30 markers of the body's metabolism (enzyme activity).

Revealed The deviation of the indicators selected from the norm is a symptom of the development/presence of various diseases or disorders of the regulation of metabolism, the work of systems and organs.

To estimate the tightness of the connection, we calculated the correlation coefficient:

$$r = \frac{\overline{xy} - \bar{x} \cdot \bar{y}}{\sigma_x \sigma_y} = \frac{n\sum xy - \sum x \sum y}{\sqrt{\left(n\sum x^2 - (\sum x)^2\right)\left(n\sum y^2 - (\sum y)^2\right)}} =$$

Student's Criterion:

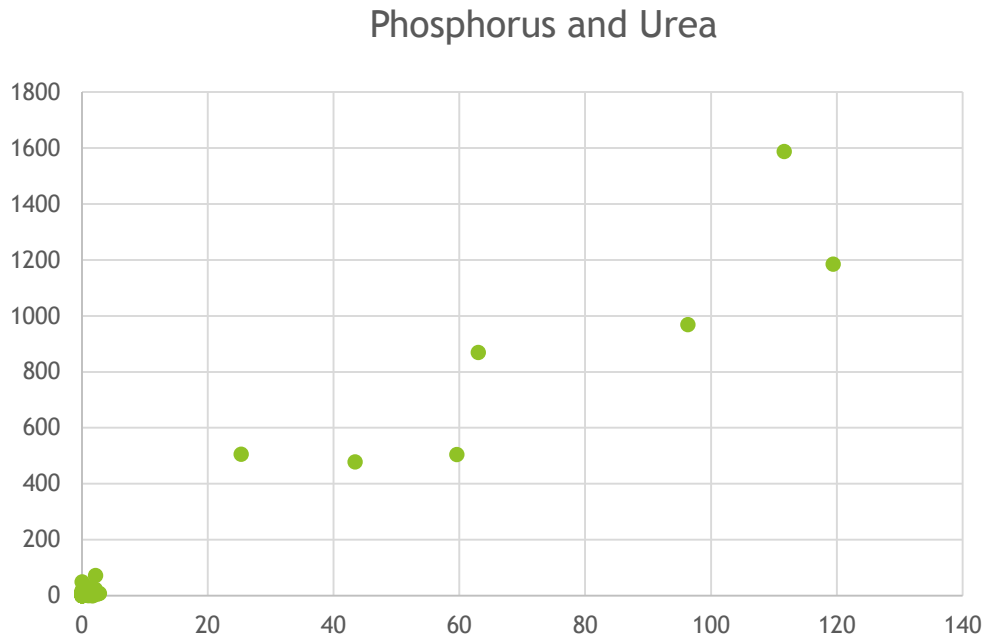
$$t = \frac{r\sqrt{n-k}}{\sqrt{1-r^2}}$$

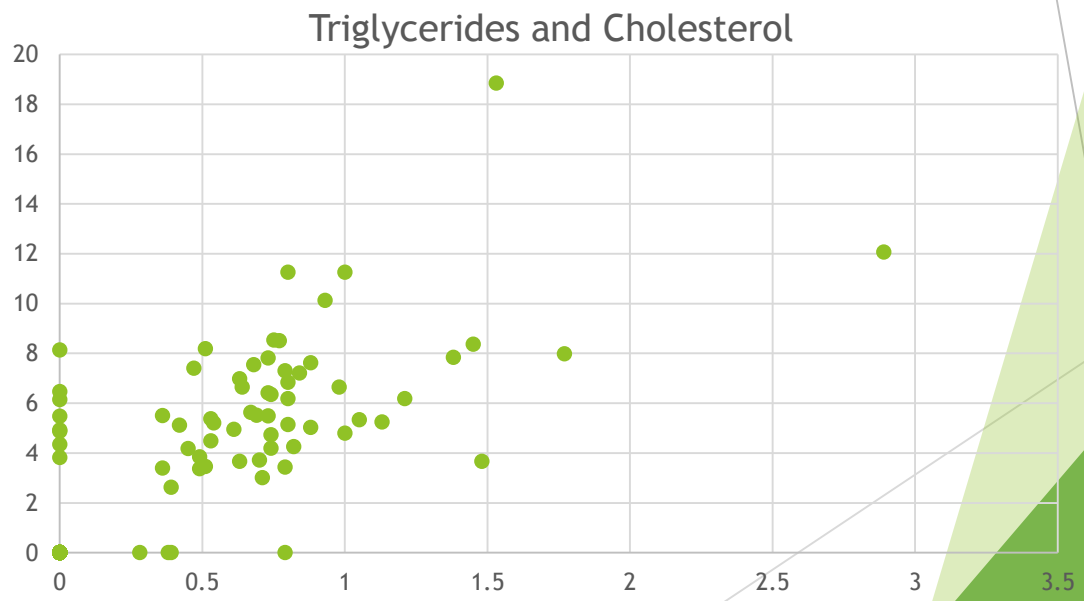
Statistical analysis was performed using the method of correlation analysis in the "*STATISTICA 6.0*" Software.

The correlation coefficients of the main biochemical parameters were determined both among themselves and with the values of the concentration of trace elements. The coefficient characterizes the strength of the relationship between indicators and its direction.

Examples of indicator values found when determining the correlation dependence (results are given in parentheses; $p < 0.05$):

- triglycerides – cholesterol (0.8);
- gamma glutamyltransferase – direct bilirubin (0.932);
- gamma glutamyltransferase – total bilirubin (0.939);
- calcium – lipase (0.64);
- phosphorus – urea (0.98);
- potassium – lipase (0.51);
- sodium – uric acid (0.51);
- sodium – lipase (0.58);
- alanine aminotransferase – direct bilirubin (0.689).


Phosphorus and Urea
1800
1600
1400
1200
1000
800
600
400
200
0
0
20
40
60
80
100
120
140


Triglycerides and Cholesterol
20
18
16
14
12
10
8
6
4
2
0
0
0.5
1
1.5
2
2.5
3
3.5

The data obtained as a result of the study indicate that there is a close relationship between the values of the activity of homeostasis enzymes and the indicators of mineral metabolism (the concentration of several trace elements in the blood serum).