

Determination of Proteolytic Activity of Gastric and Pancreatic Juice Using Protein-Fat substrates

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Annotation: The effect of hydrolysis products of fats of various concentrations on the proteolytic activity (PF) of pancreatic and gastric juice was studied using casein precipitation (casein+tributyryn, casein sunflower oil). Under the influence of sunflower oil hydrolysis products, the total proteolytic activity of pancreatic juice has clearly decreased, but under the influence of tributyrin hydrolysis products, this indicator has not changed. Hydrolysis products of sunflower oil and tributyrin oil do not affect the overall proteolytic activity in the stomach acidity fan. We have seen a decrease in the proteolytic activity of the pancreas, which is clearly manifested in the fact that the concentration of the above fats increases in the content of casein +facemailing. Increased concentration of fats did not affect the proteolytic activity of gastric juice.

Keywords: Pancreatic juice, gastric juice, proteolytic activity, protein-precipitation, casein, gelatin, tributyrin, sunflower oil

Purpose of the study: To study the effect of casein and gelatin on the total proteolytic activity of gastric and pancreatic juices under the interaction of fats.

Material and methods. The study used nachorgi gastric and pancreatic juice from dogs. The total proteolytic activity of gastric and pancreatic juices [1] was studied using the effect of protein-fat emulsion (casein + tributyrin, casein + sunflower oil, gelatin + tributyrin, gelatin + sunflower oil) in various concentrations. Only casein or gelatin was used as a substrate with gastric or pancreatic juice; 1.0% precipitation, 1.5% precipitation, 2.0% precipitation.

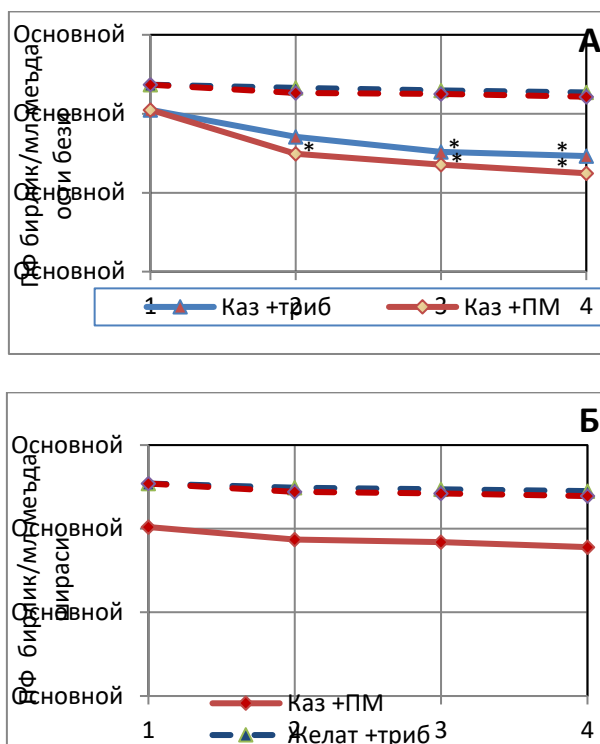
Statistical processing was carried out by calculating the average values and their average errors in the variational statistical method, determining the reliability coefficient (t) of the Student-Fisher difference. Differences in $p < 0.05$ and less were considered statistically significant.

Results obtained. The effect of various concentrations of sunflower oil in protein-fat emulsion on pancreatic juice has been studied, in studies conducted it was found that when using an 1.0% emulsion of casein and sunflower oil, the indicators of proteolytic activity were significantly lower compared to the effect on non-casein proteolytic activity, where only fat emulsion without casein. At the same time, the indicators of proteolytic activity in the use of 1.5% sunflower oil were significantly lower than in the proteolytic activity without an oil emulsion. When using 2.0% sunflower oil of the same method of total proteolytic activity, Ham was observed, which was manifested in significantly lower rates than proteolytic activity without precipitation. In general, with an increase in the concentration of sunflower oil, there was a significant gradual decrease in proteolytic activity under the influence of pancreatic juice (photo.A).

In the study of the proteolytic activity of pancreatic juice, it was found that proteolytic activity indicators are significantly lower when using a 1.0% emulsion of casein and tributyrin, using various concentrations of tributyrin in the composition of protein-skimming only in relation to proteolytic activity in which casein is used. Proteolytic activity indicators were much higher in the presence of sunflower oil. At the same time, when using 1.5% tributyrin, PF indicators were much lower than PF without precipitation, and when using 1.0% tributyrin, the indicators of PF were higher than those used in sunflower oil. Thus, with an increase in the concentration of tributyrin, a significant gradual decrease in PF of pancreatic juice was observed, it should be noted that the level of these indicators was higher than the level of sunflower oil indicators (photo. A).

In the study of the activity of proteolytic enzymes in pancreatic aphids using emulsions consisting of gelatin and sunflower oil, as well as gelatin and tributyrin, it was found that with an increase in the concentration of

sunflower oil and tributyrin, a decrease in PF of pancreatic juice compared to the indicators of the use of gelatin alone. At the same time, the actual PF indicators were much higher in emulsions than in the casein effect (fig. A).



Picture A. Changes in protein-precipitated changes in proteolytic activity of pancreatic (A) and gastric (b) juices. as a substrate, the following were used: 1 - only casein or only gelatin; casein or gelatin mixtures: 2- 1.0% precipitation; 3 - 1.5% precipitation; 4-2.0% oil emulsion.

* - significantly different compared to the indications for the use of only casein or gelatin as a substrate.

In the study of the proteolytic activity of gastric juice using emulsions consisting of gelatin and sunflower oil, gelatin and tributyrin, it was found that with an increase in the concentration of sunflower oil and tributyrin, there was not much reduction in the proteolytic activity of gastric juice compared to the indications for the use of gelatin alone. At the same time, these indicators were much higher than when casein was used in emulsions (figure A).

Discussion of results. As a result of the studies carried out, when studying the effect of various concentrations of sunflower oil in protein-fat emulsion on the proteolytic activity of pancreatic juice, it was found that with an increase in the concentration of sunflower oil, the activity of enzymes that break down pancreatic juice proteins gradually decreases significantly. The results obtained can also be explained by the fact that with an increase in the concentration of sunflower oil in the composition of protein-skimmed products, the number of precipitation agents and the total surface area of these drops increases. As we pointed out above, sunflower oil enters the series of triglycerides and is composed OFV long chain FAT, whose materials are made up of olein and linolinic acids. In the tributyrin triglyceride, however, there are short-chain fats that have a slower combination with casein compared to sunflower oil, while in the study of the effect of protein-fat emulsions on gastric juice PF using sunflower oil in its composition, it was found that with an increase in the concentration of sunflower oil, the activity of enzymes that break down proteins in gastric The resulting results can be explained by an increase in the concentration of sunflower oil in the composition of protein-skimmed products and an increase in the number of precipitation agents, and the lack of an increase in the amount of adsorbed casein in the lubricant, despite the total surface area of these drops. Conclusions: with an increase in the emulsion concentration of casein and sunflower oil, pancreatic juice contributes to a significant decrease in proteolytic activity. An increase in the concentration of tributyrin in the casein emulsion showed a significant reduction in the proteolytic activity of pancreatic juice, but this effect had a lower rate than when using sunflower oil. My increased concentration of tributyrin and sunflower oil emulsions with casein in an acidic environment did not significantly affect the activity of enzymes that break down proteins in gastric

juice. Also, the increased concentration of both tributyrin and sunflower oil in the composition of the gelatinous emulsion did not significantly affect the proteolytic activity of gastric and pancreatic juices.

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