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STUDY OF THE EFFECT OF HYDROLYZED PROTEINS IN VARIOUS PH MEDIA ON BLOOD LIPID METABOLISM

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Annotation: To study the effect of casein hydrolysates obtained with gastric and pancreatic juice on epidemic blood parameters in dogs. We have experimented on dogs. Triglyceride and cholesterol levels were measured in animal studies before and for 6 hours after protein or protein-fat emulsions were fed. Studies were conducted when feeding: 1 - 200 ml of a 30% solution of egg white; 2 - 200 ml of emulsion containing 30% egg white and 5% olive oil; 3-200 ml 30% egg white self-generating emulsion at pH-2 gastric juice in 5% olive oil; 4-200 ml 30% egg white emulsion, incubated for 2 hours with pancreatic juice pH-8 and 5% olive oil. Observations within 6 hours of feeding were taken into account, as well as indicators of overall change from baseline feeding.

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

Protein hydrolysates obtained under the action of gastric juice help to improve digestion and absorption of fats. Egg white hydrolysates, obtained under the action of pancreatic juice, help to reduce the digestion and absorption of fats. The effect of egg protein hydrolysates on blood lipid parameters depends on the proteases from which egg protein hydrolysates are obtained, as well as on the sequence of action of proteases on egg protein when hydrolysates and peptides are obtained.

Keywords: Triglycerides, egg white hydrolysates, fats, lipidemic indices, gastric juice, pancreatic juice.

ОҚСИЛЛАРНИ ТУРЛИ pH МУХИТИДА ГИДРОЛИЗЛАБ ҚОН ТАРКИБИДАГИ ЛИПИД АЛМАШИНУВИГА ТАЪСИРИНИ ЎРГАНИШ

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Хулоса. меъда ва меъда ости бези ширасы таъсирида олинган тухум оқсили гидролизаталари таъсирида тажриба хайвонлари қоннинг липидемик кўрсаткичларига таъсирини ўрганиш. Биз итларда сурункали тажрибалар ўтказдик. Триглицерид ва холестеринларнинг қондаги кўрсаткичлари ҳайвонларда ўрганилганишда оқсиллар ёки оқсил-ёғ эмулсиялари билан озиқлантиришдан олдин ва 6 соат ичида ўрганилди. Тадқиқотлар озиқлантириш орқали амалга оширилди: 1 - 200 мл 30% тухум оқсили эритмаси; 2 - 200 мл 30% тухум оқсили ва 5% зайтун ёғини ўз ичига олган эмулсия; 3-200 мл 30% казеинни ўз ичига олган эмулсия pH 2 да меъда ширасы ва 5% кунгабоқар ёғи; 4-200 мл таркибида 30% тухум оқсили бўлган эмулсия, 2 соат давомида pH -8 да ошқозон ости бези ширасы ва 5% зайтун ёғи билан инкубация қилинади. Овқатлантирилгандан кейин 6 соат давомидаги кузатувлар кўрсаткичлари ҳисобга олинди ва

овқатлантиришнинг дастлабки кўрсаткичларига нисбатан умумий ўзгариш кўрсаткичлари ҳисобга олинди.

Статистик ишлов вариацион статистика усулида ўртача қийматлар ва уларнинг ўртача хатоларини ҳисоблаш, Стюдент-Фишер фарқининг ишончлилик коэффициентини (т) аниқлаш билан амалга оширилди. P<0.05 ва ундан камдаги фарқлар статистик аҳамиятга эга деб ҳисобланди.

Калит сўзлар: Триглицеридлар, тухум оқсили гидролизаталари, ёғлар, липидемик кўрсаткичлар, меъда ширасы,меъда ости бези ширасы.

ИЗУЧЕНИЕ ВЛИЯНИЯ ГИДРОЛИЗИРУЮЩИХСЯ БЕЛКАМИ В РАЗЛИЧНЫХ РН-СРЕДАХ НА ЛИПИДНЫЙ МЕТАБОЛИЗМ КРОВИ

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Резюме: Изучение влияния гидролизатов казеина, полученных с желудочным и панкреатическим соком, на липидемические показатели крови у собак.

Материал и методы: Мы провели эксперименты на собаках. Уровни триглицеридов и холестерина измеряли в исследованиях на животных до и в течение 6 часов после кормления белками или белково-жировыми эмульсиями. Исследования проводились при кормлении: 1 - 200 мл 30% раствора яичный белок; 2 – 200 мл эмульсии, содержащей 30 % яичный белок и 5 % оливкового масла; 3-200 мл 30% яичный белок самогенерируемой эмульсии при pH-2 желудочного сока ва 5% оливкового масла; 4-200 мл 30% яичный белок эмульсии, выдерживают 2 часа с панкреатическим соком pH-8 и 5% оливковым маслом. Учитывались показатели наблюдений в течение 6 часов после кормления, а также учитывались показатели общего изменения по сравнению с исходными показателями кормления.

Статистическую обработку проводили путем вычисления средних значений и их средних ошибок, определения коэффициента достоверности (t) разности Стьюдента-Фишера методом вариационной статистики. Различия P<0,05 и менее считали статистически значимыми.

Гидролизаты белока, полученные под действием желудочного сока, способствуют улучшению пищеварения и всасывания жиров. Гидролизаты яичного белока, полученные под действием сока поджелудочной железы, способствуют уменьшению переваривания и всасывания жиров. Влияние гидролизатов яичного белока на липидные показатели крови зависит от того, из каких протеаз получены гидролизаты яичного белока, а также от последовательности действия протеаз на яичного белока при получении гидролизатов и пептидов.

Ключевые слова: Триглицериды, гидролизаты яичного белока, жиры, липидемические показатели, желудочный сок, поджелудочный сок.

Introduction: Food proteins have been known for the necessity of their nutritional and functional properties for the human body since long periods. Amino acids from proteins have the property of being absorbed during the period of dressing and digestive processes [7, 12]. In recent years, one of the important objectives of the research carried out is to maintain the health

of human functional consumption focused on the use of peptides that are part of active food, such as food substances [7].

Biologically active peptides have been described as"food components that have a positive physiological effect on the body in addition to their nutritional value" [4]. Bioactive food peptides have been shown to have a wide range of physiological functions such as antihypertensive, antioxidant, opioid agonistic, immunomodulation, antimicrobial, prebiotic, mineral-binding, thrombus-dressing, and hypocholesterolemic effects[2]. Meat, fish and milk are sources of priceless protein for many populations around the world, in addition, these proteins have great potential as new sources of biologically active peptides.[12, 16].

Peptides have the ability to self-assemble, which is a spontaneous process in which molecular units are intermolecular and special structures are characteristic through the interactions of the inside of molecules. The spontaneous process is regulated by balancing the forces of friction and thrust present within the molecules. [15].

The purpose of the study: to study the effect on lipid metabolism in the blood of experimental animals in the presence of egg protein hydrolyzates obtained under the influence of gastric and pancreatic juice.

Material and methods: we experimented on dogs. Blood indicators of triglycerides and cholesterol were studied in animal studies before and within 6 hours of feeding on proteins or protein-fatemulsions. Studies were carried out by feeding dogs with pre-prepared emulsions: 1 - 200 ml of a 30% egg protein solution; 2-200 ml of an emulsion containing 30% egg protein and 5% olive oil; decoctions consisting of 3-200 ml of 30% egg protein, gastric juice in rn-2 and 5% olive oil; An emulsion containing 30% egg protein in 4-200 ml is incubated with pancreatic juice and 5% olive oil at rn-8 for 2 hours. The observation rates of 6 hours after feeding were taken into account and the overall change rates compared to the initial feeding rates were taken into account.

Статистик ишлов вариацион статистика усулида ўртача қийматлар ва уларнинг ўртача хатоларини ҳисоблаш, Стюдент-Фишер фарқининг ишончлилик коэффициентини (т) аниқлаш билан амалга оширилди. П<0.05 ва ундан камдаги фарқлар статистик аҳамиятга эга деб ҳисобланди.

Research results and their consideration. The data obtained showed that after feeding the animals with an egg protein solution, no significant changes in triglyceride indicators were observed in the blood during the 6-hour observation (Figure A.). After feeding with egg protein and olive oil emulsion, we saw that the indicators of triglycerides in the blood increased noticeably from the results before meals. At the same time, a significant increase in these indicators saw evidence-increased changes after 2soat (1.52±0.14 mmol/l), 3 hours later (1.57±0.16 mmol/l), and 4 hours later (1.35±0.12 mmol/l) (P<0.01).

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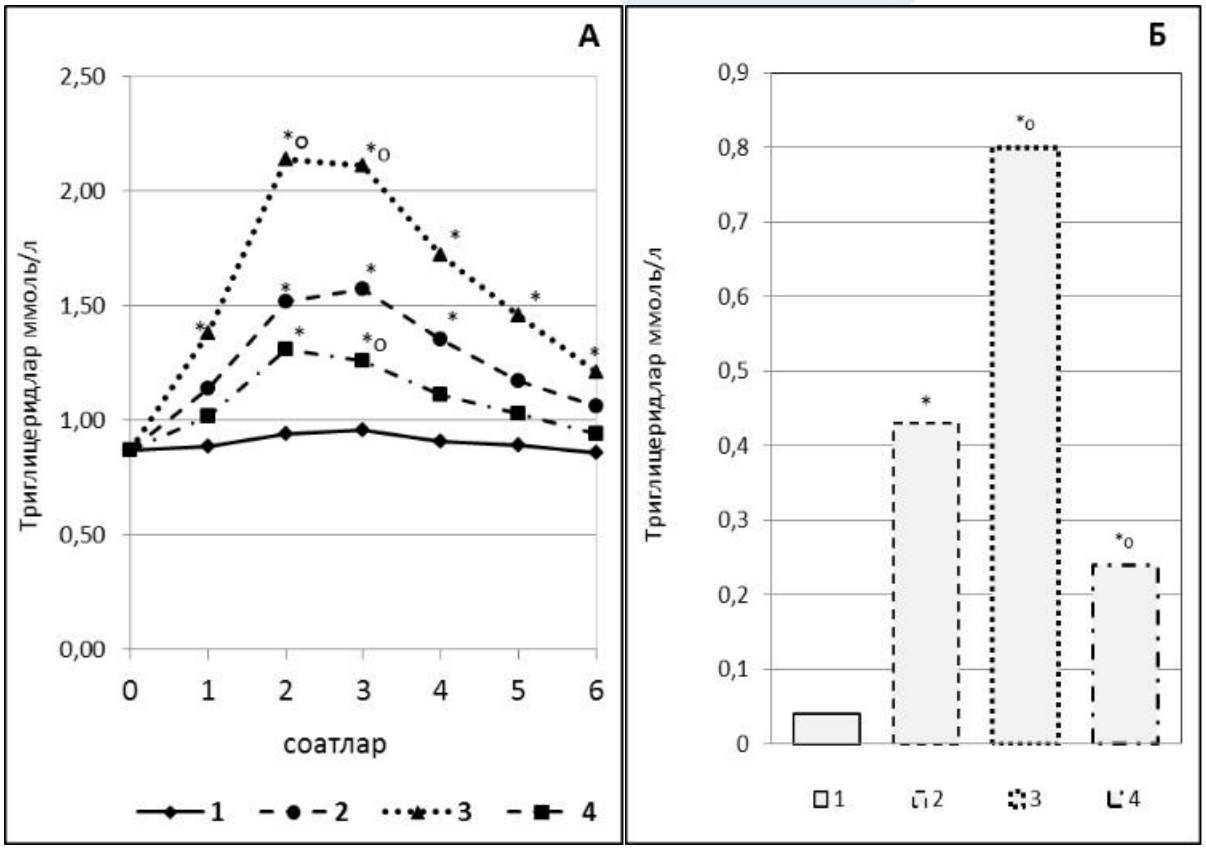

Figure 1.Change in the indicators of triglycerides in the blood. A - for 6 hours, B-the average value of the indicators before meals. Feeding ingredients 1-egg protein solution; 2 - egg protein and olive oil; 3 - egg protein and olive oil emulsion incubated for 2 hours under the influence of gastric juice; 4-egg protein and olive oil emulsion incubated for 2 hours under the influence of pancreatic juice.

* - significant level differences in indicators when fed with an egg protein solution.

O-nutritional emulsions containing egg protein and olive oil are significant differences in performance when fed.

At the same time, the triglyceride values obtained after feeding with egg protein emulsion incubated with gastric juice and olive oil and before were compared, were much higher than the average triglyceride values during the 6-hour observation period. At the same time, triglyceride indicators were 2.14 ± 0.19 mmol / l, in the 2nd hour, and in the 3rd hour-2.11±0.20 mmol/l before feeding with an egg protein emulsion without olive oil and incubation, and after 2 and 3 feeding, the indicators were much higher. After feeding olive oil and egg protein with an incubated emulsion under the influence of pancreatic juice, the 6-hour follow-up data was higher than the average before meals, but lower after feeding with egg protein and olive oil emulsion. At the same time the indicators were higher than the pre-feeding data (0.87±0.07 mmol/l) in 1chi (1.31±0.11 mmol/l) and 2 hours (1.26±0.10 mmol/l), and the indicators were seen to go to the 3rd hour and lower the results. From the same results, it was found that the average increase in triglycerides for 6 hours after feeding with egg protein and olive oil emulsion was 0.43±0.03 mmol/l compared to pre-feeding indicators. At the same time, after feeding with an incubated emulsion of casein with olive oil under the influence of gastric juice, the average growth of triglycerides (fig. 1B) 0.80±0.08 mmol/l higher than the increase in triglycerides after feeding

with egg protein and olive oil emulsion. At the same time, the average increase in triglycerides after feeding with pancreatic juice and egg protein emulsion incubated with olive oil was 0.24±0.02 mmol/L.

As a result of studies carried out, during the period of study of the effect of the last emulsion of olive oil from the incubation of egg protein on triglyceride indicators of blood under the influence of gastric juice, compared with pre-feeding indicators, as well as triglyceride indicators for 6 hours after feeding with egg protein and olive oil emulsion, were significantly higher. It was also found that when fed with an egg protein emulsion incubated with olive oil under the influence of gastric juice, the average growth rates of triglycerides increased significantly after feeding with egg protein and olive oil emulsion. This suggests that egg protein hydrolyzates obtained under the influence of gastric juice help improve the digestion and absorption of fats in the small intestine. In addition, when fed labarator feeders with casein emulsion incubated with pancreatic juice and olive oil, compared with the average values before meals, as well as after feeding with egg protein and olive oil emulsion, triglyceride indicators were found to have changed significantly over a 6-hour follow-up period. It was also found that the average total increase in triglycerides and cholesterol when fed with pancreatic juice and casein emulsion incubated with olive oil had significantly lower rates after feeding with egg protein and olive oil emulsion. This suggests that egg protein hydrolyzates obtained under the influence of pancreatic juice can help reduce the digestion and absorption of fats in the small intestine.

Conclusion: protein hydrolyzates obtained under the action of PH acidic muxite in gastric juice help improve the digestion and absorption of fats. In pancreatic juice, pH is alkaline moxite, and the protein hydrolyzates obtained help reduce the digestion and absorption of fats. The effect of protein hydrolyzates on blood lipidemic indicators is dependent on hydrolyzates derived from the action of casein hydrolyzates pH muxitini, as well as the sequence of proteases acting on the egg protein when hydrolyzates and peptides are taken.

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