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Determination of the Amount of Vitamin C in Breast Milk

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Abstract:

This article describes the results of determining the amount of vitamin C in cow's milk and colostrum.

Keywords: Protein, fat, milk sugar, mineral salts, water, organic acids, vitamins, enzymes, dichlorophenol, filtrate.

Relevance of the topic: In our republic, the dairy industry is one of the sectors equipped with advanced technology. Milk and dairy products are important in meeting the population's demand for protein, a unique nutrient, and in improving the composition of consumed food products. Therefore, special attention is paid to the development of the dairy industry. In recent years, the production of dairy products for young children and milk used for feeding calves has been launched at dairy enterprises. The volume of production of butter, hard and soft cheese, brinza, technical and feed cheese is increasing. In order to fully satisfy the population's demand for milk and dairy products and to improve product quality, joint ventures are being established in cooperation with foreign countries. Milk contains protein, fat, milk sugar, mineral salts, water, organic acids, vitamins, enzymes, etc. necessary for the normal development of the human body. Cow, sheep, camel, deer, goat milk is used for food and processing. The lactation period begins with the formation of colostrum. After cows give birth, colostrum is the first thing that appears, and it gradually turns into milk over the course of 8-9 days. Colostrum differs from pure milk by its chemical composition, thickness, and partial saltiness. Another feature that makes it different from regular milk is that it turns into milk during boiling. It is very nutritious and easy to digest, and has biological properties. The peoples of Central Asia eat "dairy milk" without hesitation. Milk of farm animals is a valuable food product. Butter, cheese, casein, yogurt and other products are produced from the milk of cattle. Cow's milk is widely consumed. Milk of sheep, goats, buffaloes, camels, buffaloes, deer, reindeer and other animals is also used; The composition of milk of animals varies depending on their type, age, feeding and storage conditions, lactation period, and season of the year.[4]

The composition of colostrum is rich in various vital substances. Its density is 1.40-1.080 g/cm3. In addition to water, it contains protein, fat, milk sugar, minerals, vitamins, enzymes, hormones, etc. When colostrum is seen under a microscope, it contains more blood cells and especially leukocytes. In science, they are called colostrum "corpuscles". Because it contains a lot of immunity and lysozyme. The amount of protein in colostrum is high, 16.0-16.5 grams of protein

per 100 grams. Or if on average 16.3 grams of protein correspond, 5 grams are casein and the remaining 11.3 grams are albumin and globulins.[3] Immune globulins in colostrum create immunity in the body of a newborn calf. Since then, the ability of the young organism to fight against the negative effects of the external environment increases. According to many scientists, colostrum is not a special secretion produced by the mammary glands, but is ordinary milk that accumulates in the udder and turns into colostrum under the influence of the mammary glands for several days. .[1]

Colostrum differs from regular milk in its chemical composition. In particular, colostrum, milked on the first day after giving birth, contains 4.5 times more proteins and 1.7 times more fat than regular milk. Immune bodies, lysozyme and leukocytes in its composition protect the young organism from various foreign microorganisms and poisons. Colostrum cleans the baby's intestines from the first excrement, miconia, that is, it acts as an excrement, and later has a positive effect on bowel movements. The amount of protein and mineral substances in colostrum decreases for 5-7 days, the amount of sugar increases and the colostrum turns into normal milk.[2]

Thus, colostrum is produced from normal milk in the udder of cows before giving birth, and it is considered a medicinal and immune-building food for new young calves. No other food can replace it. That's why newborn calves, until they are 10 days old, often drink plenty of colostrum, which ensures their steady growth and healthy development.

Milk proteins mainly consist of casein, albumin and globulin. The coagulability of casein under the influence of rennet enzyme and weak acids is used in the production of cottage cheese, cheese, and casein. Albumin plays an important role in ensuring the growth processes of a young organism, and globulin plays an important role in the formation of immune cells. According to the description of proteins, milk is divided into casein milk (even ungulates - cows, goats, sheep) and albumin milk (single ungulates - moose, deer, donkey). Casein milk protein contains at least 75% casein, and albumin milk contains 50-65% albumin. In terms of biological properties, kura albumin S is more useful than milk with casein. Milk protein contains a complete set of all essential amino acids, including essential amino acids; in particular, milk contains lysine, methionine and tryptophan in optimal proportions; rich in sulfur amino acids methionine and cystine. Milk proteins are well absorbed by the body. According to the chemical composition of milk fat, it consists of a mixture of glycerides. In chilled milk, diam. 0.1 to 20 μm (about 3 billion in 1 ml) fat particles (suspension) in the form of droplets (emulsion) in freshly milked and heated milk. In cooled milk, the fat particles that rise to the surface form the cream. Lactose in milk is a disaccharide, a pure white crystalline powder, easily accessible to various fermentation processes. Mineral substances are present in milk in the form of salts of organic and inorganic acids. Mineral substances in milk: trace elements - calcium, phosphorus, sodium, potassium, sulfur, chlorine, magnesium and others (100 g of milk contains mostly calcium - 115-130 mg%, phosphorus - 95-105 mg%), trace elements - zinc, copper, manganese , molybdenum, iron, silver and others. Many types of vitamins are found in milk (especially in milk); Milk contains enzymes (the most important of which are lactase, peroxidase, lipase, amylase, phosphatase, catalase), hormones (oxytocin, prolactin, thyroxine, folliculin, adrenaline, insulin, etc.), immune cells (antitoxins, agglutinins, opsonins, etc.), gases (SO2, O2, N2, NH3). Bacteria that cause milk spoilage form the normal microflora of milk. Freshly milked milk has antibacterial properties as it contains antibacterial substances (lactenins). Freshly milked milk retains its resistance to bacteria for 2-3 hours, therefore, after milking, milk is immediately cooled to a temperature below 10°, at 4-6° milk can be stored for two milks.

The purpose of the study. Determining the amount of vitamins in cow's colostrum and comparing it with the amount of vitamins in normal milk.

Research place, object and methods. It was carried out in the biochemistry laboratory of the Tashkent branch of the Samarkand Institute of Veterinary Medicine, by the method of checking

the precipitated filtrate of milk proteins. As research material, milk samples were taken from "TALANT" farm, Boston village, Parkent district, Tashkent region.

The results obtained. For the experiment, milk proteins were transferred using the filtrate obtained after fermentation. When 50 ml of milk was weighed into a flask, and 4 ml of a saturated solution of oxalic acid and 10 ml of a saturated solution of sodium chloride were added to it, milk oxides precipitated. Chukma was separated by filtration. Then that's it in a test tube

10 ml of the filtrate was weighed and titrated with a 0.001 n solution of 2,6-dichlorophenol until the color of the filtrate was slightly pink. If we know that the amount of 0.001 n 2,6-dichlorophenol in 1 ml is equal to 0.088 mg of ascorbic acid, we will perform the calculation. 6.3 ml of 2,6-dichlorophenol was used for the titration of the obtained filtrate, taking into account that 1 ml is equal to 0.088 mg of ascorbic acid, multiplying 0.088 by 6.3, we conclude that 50 ml of milk contains 0.55 mg of vitamin C. In the same way, 11.9 ml of 2,6-dichlorophenol was used when determining the amount of vitamins in colostrum. From this, it can be seen that there is 1.04 mg of vitamin C in colostrum. Taking into account that we took 50 ml of milk for testing, 100 ml of milk contains 1.1 mg of vitamin C, and 2.08 mg of vitamin C in breast milk.

Summary.

In conclusion, it can be said that milk contains a high amount of vitamins useful for the immune system and health of humans and young animals.

The amount of vitamins in colostrum is 10 times higher than the amount of vitamins in milk. This, in turn, allows young animals to strengthen their immune system.

List of used literature

1. Fandeev B.V. «Cattle breeding» Tashkent 1968.
2. Mavlyanov N.O. "Koramolchik" Tashkent. 1968.
3. M. Khasanov Biochemistry of animals Tashkent "Uzbekistan" 1996.
4. Ballasov U.Sh. Milk from Holstein cows' mothers
5. Changes in farm profitability depending on productivity // Tashkent 1999.
6. Beguchev A.P. Formirovanie molochnoy productivity krupnogo hornatogo skota "Kolos" - 1963.