Quantum Quest 2024

Materials Of CISM Students Scientific and Practical Conference

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Preventive and clinical medicine: abstracts of the 2nd International Student Scientific and Practical Conference/ Caspian Public University, Caspian International School of Medicine; editorial board: Zh.K. Ismailov [and others]. – Almaty

The collection includes abstracts of reports of participants in the International Student Scientific and Practical Conference on the topic: “QUANTUM QUEST.” The theses highlight current problems of medicine and medical education. The topics cover research in the field of modern trends in the development of the theory and practice of medicine, problems and prospects for the development of healthcare, methodology and practice of the development of modern medical education through the eyes of students.

Conference Report: Quantum Quest 2024

The Caspian International School Of Medicine was abuzz with excitement as it hosted the prestigious “Quantum Quest” on March 27, 2024. This event, a cornerstone of scientific inquiry and student innovation, was meticulously organized by the Student Scientific Board in collaboration with BB partners, marking a significant milestone in the school’s history.

Quantum Quest opened with an inaugural ceremony that set the tone for the day’s intellectual pursuits. The event saw an overwhelming participation from students eager to showcase their research and findings in various scientific domains. The air was charged with anticipation and a collective spirit of discovery.

The competition was structured to challenge the brightest minds and foster a collaborative environment. Students presented their projects with poise and confidence, engaging with judges and peers in meaningful discourse. The presentations were not only a testament to their hard work but also reflected the high caliber of mentorship provided by their guides.

The first prize was awarded to Rashi Chandra, whose research stood out for its originality and potential impact. Under the expert guidance of Mirsaliyev Mirkhoshim and ELkendi Taufic, Rashi’s work shone brightly as a beacon of student excellence.

The second prize was claimed by a dynamic trio: Bee Bee Hajira, Kalakata Gnanasekhar Reddy, and Jangili Bharat. Their collaborative effort, nurtured by Ainur Yerlan’s mentorship, demonstrated the power of teamwork and collective intellect.

Securing the third prize was Toke Sharavani, whose dedication and perseverance under Tolegen Gauhar’s guidance were truly commendable. Sharavani’s project reflected a deep understanding of scientific principles and a strong commitment to research.

As the event unfolded, respected teachers and board members welcomed students, participants, and guests with open arms. Their presence underscored the supportive community at Caspian International School Of Medicine and their commitment to fostering academic excellence.

The closing ceremony was a heartfelt tribute to all those who contributed to Quantum Quest’s success. It celebrated not just the winners but every participant who dared to question, explore, and innovate.

In conclusion, Quantum Quest was more than just a competition; it was a celebration of young minds driven by curiosity and guided by knowledge. The event left an indelible mark on all attendees, inspiring them to continue their quest for scientific truth.

Congratulations once again to all winners and participants for pushing the boundaries of science and setting new benchmarks for future Quantum Quests.

CONTENT

NEO GOAT MILK

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Introduction :
Goat milk is a dairy product that looks and tastes similar to cow's milk.
Goat's milk has the same taste and texture as whole cow's milk. Although there may be a slight contrast in taste due to the animal's diet and husbandry, there should not be any significant differences.

Object of study:
"BBPARTNERS" : freeze dried goat milk powder

Purpose of study:
To study the composition of freeze-dried goat milk, analysis and comparative characteristics of physiochemical properties of milk.
Amino acid composition

No.	**Components**	**Conc.(mg/l)**	**Massshare (aminoacid)**
1	Arginine	47.0	0.11±0.29
2	Lysine	8.30	0.23±0.04
3	Tyrosine	9.70	0.13±0.06
4	Phenylalanine	16.0	0.15±0.07
5	Histidine	9.4	0.14±0.07
6	Leucine Isoleucine	21.0	0.32±0.08
7	Methionine	6.60	0.12±0.03
8	Valine	18.0	0.2±0.11

9	Proline	42.0	0.15±0.1
10	Threonine	16.0	0.21±0.08
11	Serine	19.0	0.21±0.08
12	Alanine	26.0	0.12±0.10
13	Glycine	72.09	0.38±0.13

Vitamin composition

No.	**Vitamin**	**At 100g**	**Per cup 240ml**
1	B2	8%	20%
2	A	4%	10%
3	B1	3%	8%
4	B5	3%	8%
5	D	3%	7%
6	B6	2%	6%
7	C	2%	5%
8	B12	1%	3%
9	E	Trace	1%
10	K	Trace	1%
11	Folate	Trace	1%

Mineral composition

Mineral	**At 100g**	**Per cup 240 ml**
calcium	13%	33%
Phosphorus	11%	27%
Potassium	6%	14%
magnesium	3%	9%
Zinc	2%	6%
sodium	2%	5%
selenium	2%	5%
manganese	1%	5%
iron	Trace	2%

Goat's milk belongs to the highly nutritious dietary food products, which have pronounced anti-infective, anti-anemic and anti-hemorrhagic properties. Goats have much greater genetic variability than cows. This causes a significant diversity in the composition of their milk in terms of concentration and physicochemical properties of protein, buffering capacity, mineral content, etc. Nutrient density ranges from very low to very high, which can be used to build various dietary programs for children.

In general, goat milk is a source of high-quality protein, fat, vitamins and minerals. Goat milk proteins differ significantly from cow milk proteins in both fractional composition and spatial configuration .

It should be noted that goat milk contains half as much as Bovine alpha 1-casein, which has allergenic properties. At the same time, the content of B-casein in it is 2.3 times higher, due to which goat milk forms a soft curd that is easily digestible in the human stomach. In addition, most of the whey proteins in goat milk are classified as lactoalbumin, and those in cow milk are classified as B-lactoglobulin.

In this regard, goat milk and its processed products are low-allergenic food sources and do not cause digestive disorders.

Microstructure of milk

The fat globules of goat's milk are smaller than those in cow's milk, more evenly distributed, and better protected from sticking together, which provides a larger contact surface of the fat with the enzymes of the gastrointestinal tract and better digestibility. Thus, we can say that goat's milk is a natural homogenized product, due to which it is digested in the stomach twice as fast as cow's milk. In addition, goat milk is successfully absorbed by low birth weight newborns. Goat milk products can be used as components of a healthy diet for adults to prevent and treat chronic diseases of the cardiovascular system, coronary insufficiency, atherosclerosis, and hypertension.

For babies:

COLOSTRUM

A more concentrated form of nutritional and biologically active substances is colostrum, produced in the first days of lactation. Colostrum differs from mature goat milk in appearance, chemical composition, and physiological effects. It has a thick, viscous consistency, yellowish-white color, salty taste, with specific smell, high acidity, many vitamins (A, B, C, D, E), differs from milk in its high magnesium content.Goat colostrum is characterized by the highest mass fraction of fat compared to other types of farm animals. It contains immunoglobulins (IgA, IgG, IgD, IgE, IgM), of which 90% is IgA; cytokines that ensure intercellular interaction in the immune system (for example, interferon); growth factors (epithelial, insulin-like, platelet, transforming, etc.), which stimulate the growth of various tissues; lactoferrin, which prevents the proliferation of microorganisms, enhances the phagocytosis and efficiency of cytokines; factors of nonspecific immunity (lysozyme, etc.), amino acids (proline is important for regulatory peptides of the immune system, taurine is necessary for brain development); highly digestible proteins, fats, carbohydrates, vitamins (A, B-carotene, E, B12, D), minerals.

In terms of protein composition, colostrum is closer to blood than milk, since colostrum contains a lot of proteins such as globulins and albumins.

Colostrum contains enzymes for xanthine oxidase and lacto peroxidase, which at the cellular level increase the consumption of glucose and amino acids.

Colostrum exhibits antioxidant properties due to the presence of tocopherols and lactoferrin as an iron chelator. By binding iron, lactoferrin prevents the development of chain reactions of lipid peroxidation (LPO).

The most effective method of preserving colostrum is freeze-drying, since this product contains immune factors, growth hormones, vitamins, enzymes and other substances that are destroyed under the influence of high temperatures.

Research shows that the chemical composition of goat milk may make it easier to digest.

CASEIN

Although both cow's and goat's milk contain casein protein, the specific composition is slightly different;

Cow's milk:

Contains A1 beta-casein and A2 beta-casein;

Goat's milk:

Contains A2 beta-casein and minimal amounts of A1 beta-casein.

Digestion of the A1 casein types in cow's milk results in the production of beta-casomorphin-7, an opioid peptide.

Unfortunately, beta-casomorphin-7 is associated with intestinal inflammation, various digestive problems, and allergic reactions in some people.

Lactose

Goat's Milk Contains Slightly Less Lactose. Lactose is a natural sugar found in milk and it is made up of two types of sugar; glucose and galactose.
On the negative side, a large number of people are either lactose sensitive or intolerant. Because of this, it is estimated that approximately 65% of the world's adults have difficulty digesting sugar.
According to a recent study that examined the lactose content of different milk sources, cow's milk contains 4.93 grams of lactose per 100 grams. In contrast, the amount of lactose in goat milk is 4.33 grams;

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