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Study on Preparation of Flavored Milk from Cow Milk Blended with Oats

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ABSTRACT

Strawberry flavored milk with oats blends with creamy texture of milk. Oats are known for their high fiber content, heart healthy properties, and ability to provide long lasting energy. When combined with strawberry flavor, the result is not just a delicious beverage but one that offers functional health benefits. The drink caters to consumers seeking nutritious alternatives to traditional flavored, especially those looking for high fiber content, or foods with additional functional value. The development of this product involves creating a well-balanced formulation that ensure a smooth and enjoyable drinking experience while maintaining the nutritional integrity of both oats and strawberries this drink can be made with dairy milk and suitable for a variety of daily preferences this innovative beverage combines taste with health, offering a solution to the growing demand for functional foods. It has the potential to appeal to a broad marketing from health-conscious individuals and fitness enthusiasts to families seeking healthier alternatives for their children. In this development process the focus on achieving the perfect blend of flavor, texture and nutritional benefits while also considering factors like shelf life, consumer preference, product stability.

Keywords: Oats, strawberry flavor, functional beverage, health benefits.

INTRODUCTION

Nutritionally, flavoured milk retains most of the health benefits of regular milk. It is an excellent source of calcium, which is essential for strong bones and teeth. It also provides high- quality protein, vital for muscle development and repair, and contains other important nutrients like potassium, vitamin D, vitamin B12, and phosphorus. However, flavoured milk usually contains added sugars, which can increase its calorie content. For instance, an 8-ounce serving of plain low-fat milk contains about 100 calories and 12 grams of natural sugar (lactose), while the same amount of chocolate milk may contain up to 180 calories and 24 grams of total sugar, including added sugars. Because of this, some health experts advise consuming flavoured milk in moderation, especially in the context of rising childhood obesity and concerns about excess sugar consumption. Flavoured milk is a beverage made by adding natural or artificial flavors and sweeteners to milk. Common flavors include chocolate, vanilla, strawberry,

banana, and caramel. Depending on the brand and target audience, it may be made from whole milk, low-fat, or even plant-based milk alternatives. Often, flavoured milk is fortified with additional nutrients like calcium and vitamin D to enhance its health value Flavoured milk is typically made by adding sugar, flavoring agents, and sometimes coloring to regular milk. Popular flavors include chocolate, strawberry, vanilla, banana, and even more exotic options like caramel or coffee. It can be made from whole milk, low-fat milk, or even non-dairy alternatives, depending on the product and target audience. Flavoured milk is often fortified with additional vitamins such as vitamin D and calcium, making it a potentially nutritious option for people who might otherwise avoid milk. One of the main appeals of flavoured milk is its taste. For children who may be picky eaters or reluctant to drink plain milk, flavoured milk can provide an enticing alternative that still delivers many of milk's essential nutrients. It is commonly offered in school cafeterias, vending machines, and stores as a convenient and tasty drink. One of the most significant benefits of flavoured milk is its role in increasing milk intake, especially among children. Many children dislike the taste of plain milk and may avoid it altogether. Flavoured milk, with its sweet and enjoyable taste, encourages regular consumption and helps children meet their daily nutritional needs. In today's market, sugary drinks are widely consumed, often with little to no nutritional benefit. Flavoured milk, while sweetened, still provides essential nutrients like protein and calcium. When chosen over soft drinks or artificially sweetened juices, flavoured milk offers a much healthier alternative, especially in school settings and at home. During childhood and adolescence, bone development is at its peak. Calcium and vitamin D are critical during this stage, and milk is a primary source of both. Flavoured milk makes it easier for kids and teens to consume the necessary quantities of calcium, supporting long-term bone health and helping to prevent future conditions such as osteoporosis.

MATERIALS & METHODS

Pasteurized milk, jaggery, strawberries, oats

Preparation of Strawberry flavored milk with oats:

To prepare strawberry-flavoured milk with oats powder, begin by measuring the required quantity of fresh or pasteurized milk and heating it gently until it reaches a lukewarm temperature. While the milk is heating, prepare the oats powder by grind the oats into a fine powder using a blender or grinder. Next, add the oats powder to the warm milk while stirring continuously to avoid lumps. Allow the mixture to simmer for a few minutes until it thickens slightly and the oats are well incorporated. Then, add natural strawberry flavoring or strawberry puree to the milk, stirring well to ensure an even distribution of flavor. If desired, a natural sweetener such as jaggery or honey can be added to enhance the taste. Finally, allow the mixture to cool to room temperature and refrigerate it for a refreshing cold drink, or serve it warm, depending on preference. This nutritious and delicious beverage combines the creamy texture of milk with the fiber-rich goodness of oats and the fruity essence of strawberries.

PREPARATION FLOW CHART OF STRAWBERRY FLAVORED MILK WITH OATS:

Measure required amount of milk

↓

Heat milk to lukewarm temperature

↓

Grind oats into fine powder

↓

Add oats powder to warm milk with stirring

↓

Simmer mixture until slightly thickened

↓

Add strawberry flavor or puree

↓

Add sweetener (e.g., jaggery) if desired

Fig no :1 Preparation of strawberry flavoured milk with oats

INGERDIENT	VARIATION-1	VARIATION-2	VARIATION-3
Milk	500 ml	500 ml	500 ml
Oats	30 gm	20 gm	10 gm
Jaggery	100 gm	100 gm	100 gm
Strawberry	0.5 ml	0.5 ml	0.5 ml

Table no :1 Formulations

RESULT

Sensorial analysis:

The formulated variations along with control were subjected to sensorial evaluation. The results of sensory evaluation of formulated variations and control were exhibited in the table no. 2 which reveals the mean values for all the sensory attributes of variation-1, variation-2 and variation-3.

SENSORY ATTRIBUTE	VARIATION - 1	VARIATION - 2	VARIATION -3
Color	8	9	8
Consistency	8	8.5	8
Flavor	8	9	7
Taste	8	9	7
Appearance	8	9	8.5
Overall acceptability	8	8.9	7.7

Table no: 2 sensorial evaluations

MOISTURE:
The reduced moisture helps enhance the flavoured milk texture, giving it a thicker and creamier consistency that is often preferred by consumers seeking a richer mouthfeel. This improved texture not only provides a more satisfying sensory experience.

ACIDITY:
The results of physico-chemical analysis of optimized product and control shows that the lower acidity in the strawberry flavoured milk.

PH:
Due to lower acidity the pH of the strawberry flavoured milk was increased hence it was clearly states that pH of optimized sample was less when compared to control.

FAT:
Fat percentage was found to be greater in optimized sample than control, high fat content of milk is because of medium chain triglycerides [MCTs] which are easily digestible and gives energy.

TOTAL SOLUBLE SOLIDS(TSS):
TSS Brix percentage was found to be greater in optimized sample than control. Higher Total Soluble Solids (TSS) content in optimized variation compared to control offers several advantageous qualities that can enhance its appeal and nutritional profile.

PARAMETER	CONTROLS	SAMPLE
MOISTURE	81.6%	79.9%
PH	3.5	4.2
FAT	4%	6.8%
TSS	9.5%	10.2%
ACIDITY	0.58%	0.45%

Table no: 3 Physio-chemical analysis

DISCUSSION

The strawberry-flavored milk with oats has shown the highest overall acceptability in sensory analysis, highlighting its significant advantages in the beverage market. The formulation not only combines the rich flavors of strawberries and the creamy texture of oats but also offers a wealth of nutritional benefits. The vibrant flavor profile of the flavoured milk, characterized by the tangy sweetness of strawberries, creates a refreshing and enjoyable drinking experience. This well-balanced taste is complemented by the creamy richness of oats, making it an appealing choice for a broad audience. The aroma, enriched with fruity notes, adds to the overall sensory pleasure, enhancing consumer satisfaction. The product's visual appeal is further enhanced by the striking pink hue imparted by strawberries, attracting consumers and signaling its high antioxidant content. This aesthetic quality contributes to its marketability and consumer interest, making it a standout option among beverages

CONCLUSION

The results of the present study concluded that the use of strawberry flavoured milk with oats enriched the nutritive qualities of flavoured milk which increases vitamin-minerals, medium chain triglycerides [MCTs] which helps to reduce obesity. It is rich electrolytes, improves skin surface and keeps gut healthy. Three different variations were formulated; among them the most accepted variation was V2 which was almost nearer to control. Results concluded that optimized [V2] oats based flavoured milk having satisfactory sensory attributes which includes taste, flavor, color, consistency, and shelf life for 10 days at 5℃. From the results of physic-chemical analysis I clearly conclude that due to less moisture in optimized variation the water activity (aw) of optimized variation was less which contributes to less microbial growth compared to control. As per the microbial analysis results the study concludes that less microbial growth in optimized sample was due to the presence of anti-microbials, phenolic acids and anti-present in the optimized sample. Finally, it can be concluded that strawberry flavoured milk with oats is a nutritive refreshing drink

which can provide for those suffering from nutritive deficiencies. It also serves as immunity booster.

Declaration by Authors
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REFERENCES

1. Kahandal, S. S., Shelke, R. R., &Bawangade, S. S. (2020). Effect of strawberry pulp on physico-chemical properties of lassi. Journal of Pharmacognosy and Phytochemistry, 9(5S), 527–529.
2. Qasim, Z., Naz, A., Ahmad, S., & Razzaq, K. (2019). Development and
3. quality evaluation of strawberry-based value-added products. Agricultural Sciences Journal, 1(1), 7–18.
4. Strawberries: antioxidant properties, health benefits and innovative technologies Jorge Moreno, Guillermo Petzold, Constanza Pavez, Pamela Zúñiga Strawberries, 189-213, 2014
5. Sensory perception, nutritional role, and challenges of flavored milk for children and adults Journal of food science 80 (4), R665-R670, 201517.
6. Maynard A AMerine, Rosemarie, Pangborn, Edward B Roessler. 2023.Principles of sensory evaluation of food.
7. FSSAI manual of methods of analysis of milk and milk products.
8. UlisaPachekrepapol, Yanin kohekohe, jarinyaWongsawat. 2021. formulation of yogurt like product from coconut milk and evaluation of physicochemical rheological and sensory properties
9. Elisa Helena Paz Andrade, LeorgesMoraes da Fonseca, Marcelo Resende de Souza Cláudia Freire de Andrade Morais Penna. Determination of fat content of fermented beverages by Gerber method. Semina.
10. JulijanaTomovska, Nikola Gjorgievski, BorcheMakarios 2016. Examination of pH Titratable Acidity and Antioxidant Activity in Fermented Milk. Journal of Material science and Engineering A 6 (11-12) (2016) 326-333.

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