COMPARATIVE ANALYSIS OF DAHI PREPARED FROM COW AND BUFFALO MILK IN MOHESHKHALI, COX'S BAZAR

A production report submitted in partial satisfaction of the requirement for the Degree of Doctor of Veterinary Medicine (DVM)

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Session: 2017-18

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August 2023

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August 2023

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Abstract

The objective of the experiment was to evaluate the quality of Dahi made from cow and buffalo milk. In context with this, samples of milk were obtained from Malek Dairy Farm and Azmul Agro Farm, both in Moheshkhali, Cox's Bazar. Samples were examined in the Animal Nutrition Laboratory (Dept. of Animal Science and Nutrition) and Dairy Science Laboratory (Dept. of Dairy and Poultry Science), Chattogram Veterinary and Animal Sciences University, Chattogram. Physical characteristics (colour and appearance, body and texture, aroma, taste), chemical parameters (acidity, fat, protein, total solids, ash) were used to assess the quality of the Dahi samples. From the nutritional standpoint, it can be demonstrated that Dahi made from buffalo milk scored higher than cow milk. And the overall organoleptic scores of Dahi prepared from cow and buffalo milk are almost same. Both dahi are good in taste, colour, flavour and appearance. However, buffalo milk dahi showed better results for nutrient contents and consumer acceptance.

Keywords: Cow milk, buffalo milk, dahi, quality evaluation.

Chapter 1: Introduction

Milk is considered to be a practically perfect food. There are numerous varieties of milk products manufactured throughout the world. As a commercial basis, milk is used in Bangladesh to produce sweets, butter, ghee, chocolate, dahi and ice cream. In the current period of industrialization, the diets of people are evolving, as they are become more health concerned. As a result of this, milk is transformed into a number of milk products, mostly fermented ones, among which is dahi. According to Chakraborty (1998), about 4% of the milk produced in Pakistan is transformed into dahi for consumption, as compared to 7% in India. In Bangladesh, around 4% of the total amount of milk used to prepare dahi (Mustafa, 1997).

These dairy products are tempting, healthy, and rich with nutrition. All the nutrients found in milk are present in dahi, with the exception of a slight variance in lactose level. Dahi has a 30% lower lactose content than milk because some of the lactose is fermented to produce lactic acid. Dahi is renowned for its medicinal benefits in addition to its nutritional benefits.

According to (FAO/WHO, 2002), Probiotics are microorganisms that are alive and when taken in sufficient amounts, exert beneficial effects on the host. The lactic acid bacteria (LAB) found in fermented milk products are probiotics, and their metabolic by-products include antioxidant, immune-booster and antibacterial properties (Ramasamy and Suyambulingam, 2015).

Following the emergence of health foods, Dahi has gained popularity for its ability to effectively lower blood cholesterol levels while preventing the formation of intestinal bacteria and treating intestinal disorders like constipation, diarrhoea and dysentery (Akter *et al.,* 2010).

Howlett (2009) claimed that dahi enhances the nutritious value of foods, protects against osteoporosis and has positive effects on the bone and circulatory systems. Wilt *et al*. (2010) observed that when milk is fermented, lactic acid bacteria break down lactose into glucose and galactose and generate the enzyme galactosidase, which hydrolyses lactose and increases tolerance for dairy products, reducing the risk of lactose intolerance.

Although cows are the primary source of milk worldwide, buffalo are also a significant contributor. Fat of buffalo milk has more Tocopherol and less Cholesterol. Compared to cow milk, buffalo milk is higher in calcium and phosphorus and lower in sodium chloride and potassium.
As dahi is offered and consumed at all festivals and special events, dahi also has a unique social importance.

In Bangladesh, Dahi (curd) is mostly made from cow milk and occasionally from buffalo milk. In traditional method, the growth of bacteria (*Lactobacillus, Streptococcus*) as the dominant flora that is already present in the milk itself as a natural souring agent may cause curdling. For large-scale manufacture, the process of fermentation is carried through the use of additional bacterial cultures *(Lactobacillus bulgaricus, Lactobacillus plantarum, Streptococcus thermophilus, Streptococcus lactis).*

Several Studies have been done in different regions of the world on the quality of Dahi prepared from different kinds of milk and methods. Most of them are based on cow-milk-dahi than buffalo-milk-dahi. It's noteworthy to notice that no studies have been established based on the conventional technique of Dahi production and their quality assessment. Besides, buffalo milk dahi are not produced in large scale in Bangladesh. The objective of this study is to evaluate the quality of cow milk and buffalo milk dahi which are prepared by following the traditional method. As there shortage of affordable and cheap animal origin protein in Bangladesh, so buffalo milk dahi industry can also be established besides cow milk dahi. So, it can be said that this research may have a big impact on the economy of our country and public health..

Chapter 2: Materials and Methods

2.1. Site of experiment

The study was conducted at the Animal Nutrition Laboratory (Dept. of Animal Science and Nutrition) and Dairy Science Laboratory (Dept. of Dairy and Poultry Science), Chattogram Veterinary and Animal Sciences University, Chattogram.

2.2. Collection of cow and buffalo milk

Cow milk was collected from Malek Dairy Farm, Moheshkhali, Cox's Bazar. Buffalo milk was collected from Azmul Agro Farm, Moheshkhali, Cox's Bazar. Fresh whole cow and buffalo milk samples were taken in three-litre batches

Figure 1: Buffalo and Cow milk sample

2.3. Dahi Preparation

Dahi was prepared by following the method practised on a local basis in the Moheshkhali area. Here, two methods were practised for the preparation of dahi: adding starter culture to milk and not adding starter culture to milk. So, the study was done on preparing dahi from cow and buffalo milk by these methods.

A total of four batches of dahi were prepared: a) cow milk dahi with the addition of starter culture; b) cow milk dahi without the addition of starter culture; c) buffalo milk dahi with the addition of starter culture; and d) buffalo milk dahi without the addition of starter culture.

2.3.1. Preparation of dahi with the addition of starter culture

The collected whole milk samples were boiled until they contained up to 30% less milk than the initial volume. During the milk's boiling process, sugar was added at a rate of 8% and thoroughly mixed with a stirrer. After reaching the desired temperature, the milk pan was removed from the heater, let to cool to about 42°C, and then inoculated with 3% starter cultures obtained from a nearby dahi producer.

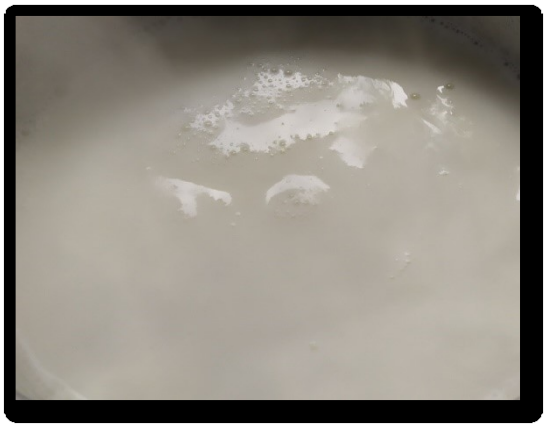

Figure 2: Boiling of milk

Figure 3: Addition of sugar (8%)

Figure 4: Addition of culture (3%)

Figure 5: Pouring of milk in earthenware pot

Immediately following inoculation, 42°C warm milk was poured into earthenware pots. Earthenware pot helped to soak and release moisture from the Dahi. In order to maintain a comfortable temperature, the dahi setting pot is typically covered with woollen cloth. For 8 to 10 hours, the milk ferments inside the container. The dahi samples were fully coagulated and then kept for analysis in a refrigerator at around 5°C.

2.3.2. Preparation of dahi without the addition of starter culture

The process of making dahi without the addition of starter culture is nearly identical to the previous one. The only difference is that there was no addition of starter culture to the milk. The milk was immediately transferred to earthenware pots after cooling. Inoculums are produced by the microorganisms that are trapped in the cracks of earthenware pots. The clay vessels should be kept for fermentation as before.

2.4. Organoleptic test (using the Hedonic scale) for quality assessment

Food preference has been measured using a variety of methods. The most popular technique involves a questionnaire with selected attribute for food, where a hedonic scale is used to assess the level of enjoyment. An organoleptic measure known as the hedonic scale is used to express the judge's level of like. Both specialists and inexperienced consumers have used this test, however it is believed to be more useful for the latter. Feelings of like and dislike are measured on a rating scale in hedonic scale (1-9). A panel of judges evaluated each batch of dahi samples to assess the colour and appearance, body and texture, aroma, taste.

2.5. Chemical analysis

2.5.1. Milk

Before making Dahi, several tests were run in the lab to evaluate the original quality of the milk samples. The following measurements were made: acidity (%), fat (%), protein (%), total solids (TS%) and specific gravity.

Acidity percentage was estimated by titrating with 0.1N sodium hydroxide solution , fat percentage was estimated by following the Gerber method, protein percentage

was estimated by the Kjeldahl method (AOAC, 1990), total solids percentage was estimated by the oven drying method following the procedure of AOAC (1990). A Quevenne lactometer was used to measure specific gravity in accordance with the technique outlined by Aggarwala and Sharma (1961).

2.5.2. Dahi

Acidity percentage was estimated by titrating with 0.1N sodium hydroxide solution according to the procedure of Aggarwala & Sharma (1961), fat percentage was estimated by following the Gerber method, protein percentage was estimated by the Kjeldahl method (AOAC, 1990), total solids percentage and ash percentage were also estimated by the oven drying method following the procedure of AOAC (1990).

2.6. Statistical Analysis

All data were entered into Microsoft Excel 2010. Data were analysed by using one way (ANOVA) analysis of variance test. The statistical software SAS 2003 was used and Duncan multiple range test used to detect level of significance.

Chapter 3: Results and Discussion

3.1. The quality assessment of milk

The collected cow and buffalo milk samples were evaluated to determine their initial quality.

Casein, albumin, citrates, phosphates, and carbon dioxide are some of the components of milk that contribute to its natural acidity. On the other hand, acidity results from lactic acid being produced from lactose by microbial activity. Both were determined collectively by titrating milk against a standard alkali.

The quality assessment of cow and buffalo milk are represented in **Table 1.** The acidity (%) of cow milk is significantly higher than buffalo milk ($P<0.05$). Bin *et al*. (2003) reported 0.139% lactic acid in cow milk. Cow milk contains 0.14% acidity, according to Nahar *et al. (*2007). Yoganandi *et al*. (2015) reported that buffalo milk has 0.133% acidity. The fat (%), protein (%), and total solids (%) of cow and buffalo milk were also consistent with those reported by Siddiky (2020).

Table 1: The quality assessment of cow and buffalo milk

Parameters	**Cow milk (Mean ± SE)**	**Buffalo milk (Mean ± SE)**	**Level of significance**
Acidity (%)	$0.14^{a} \pm 0.003$	$0.13^{b} \pm 0.000$	0.02 (*)
Fat (%)	$3.10^{a} \pm 0.100$	$6.90^{b} \pm 0.060$	<0.001 (**)
Protein (%)	$3.47^{a} \pm 0.005$	$4.87^{b} \pm 0.008$	<0.001 (**)
Total Solid (%)	$11.66^{a} \pm 0.073$	$16.95^{b} \pm 0.140$	<0.001 (**)
Specific gravity	$1.03^{a} \pm 0.00$	$1.03^{a} \pm 0.003$	0.37 (NS)

^{abcd} = Different letters in a same row differ significantly

SE= Standard Error; Level of significance: * = Significant at 5% level, ** = Significant at 1% level. NS = Non-significant.

The specific gravity of cow and buffalo milk were similar ($P>0.05$). Park *et al.* (2007) described the specific gravity of cow milk is (1.0231-1.0398). According to

Hanl *et al.* (2012), the specific gravity range for buffalo milk was between 1.0317 and 1.0380 on average. The results of specific gravity for cow and buffalo milk are also similar to the findings of Nahar *et al.* (2007). This finding indicates that the milk sample used in the study was of good calibre.

3.2. Organoleptic Parameters of Dahi

3.2.1. Colour and appearance

The colour and appearance of Dahi prepared from cow milk and buffalo milk are represented in **Table 2.** Statistical analysis revealed that cow milk dahi had the greatest colour and appearance rating whereas buffalo milk (both with and without starter culture) dahi received the lowest rating ($P>0.05$).

That may be because cow milk contains more carotenes, which may contribute to the golden, yellowish development of Dahi made from cow milk. The findings of this investigation agree with the results of Akter *et al*. (2010) and Islam *et al.* (2018), who found that the colour and appearance of the dahi made from whole cow and buffalo milk were 18.38±1.39 and 17.60±0.69, respectively.

3.2.2. Body and texture

The body and texture scores of Dahi prepared from cow milk and buffalo milk are represented in **Table 2.** The dahi made from buffalo milk (with the addition of starter culture) had significantly higher mean value for body and texture, while the Dahi made from cow milk (with the addition of starter culture) had the lowest ($P>0.05$). And dahi made from buffalo milk (without the addition of starter culture) also had the greatest mean value compared to dahi made from cow milk (without the addition of starter culture) ($P>0.05$). According to Venkateshaiah *et al.* (1996), Dahi's body composition was improved by increasing amounts of total solids (fat and SNF). Again, fermentation vessel, culture addition, fermentation time, temperature, and manufacturing process were all shown to be significant in improving the quality of texture (Das and Rewati, 2013).

Table 2: Organoleptic properties of dahi prepared from cow and buffalo milk with and without culture

Parameters	Cow milk		Buffalo milk		Level of significance
	With culture (Mean ± SE)	Without culture (Mean ± SE)	With culture (Mean ± SE)	Without culture (Mean ± SE)	
Colour and appearance	8.50^{a}±0.060	8.53^{a}±0.033	8.43^{a}±0.033	8.10^{b}±0.060	0.01 (**)
Body and texture	7.83^{c}±0.07	7.33^{d}±0.070	8.53^{a}±0.070	8.13^{b}±0.090	<0.001 (**)
Aroma	8.33^{a}±0.070	8.40^{a}±0.060	7.40^{b}±0.060	7.50^{b}±0.060	<0.001 (**)
Taste	8.17^{b}±0.090	7.90^{c}±0.060	8.40^{a}±0.060	7.93^{c}±0.070	0.003 (**)

^{abcd} = Different letters in a same row differ significantly

SE= Standard Error; Level of significance: * = Significant at 5% level, ** = Significant at 1% level.

Figure 6: Sensory evaluation

3.2.3. Aroma

The organoleptic properties (Aroma) of dahi prepared from cow and buffalo milk with and without culture are represented in **Table 2**. Statistical analysis revealed that the value for aroma of dahi prepared from cow milk was significantly higher than buffalo milk dahi (P>0.05). Here the aroma of cow milk dahi was more preferred by the judges than buffalo milk. Nahar *et al*. (2007) also ranked the smell of cow milk dahi better than buffalo milk dahi. Similar findings also reported that with increasing milk fat content up to a level of 4.5%, the smell score gradually increased, but the value fell after that (Yesmin *et al.,* 2016). Moreover, the addition of culture in milk (cow and buffalo) was also responsible for the highest acceptability of flavour. According to Cheng (2010), the relative balance of flavour molecules originating from fat, protein, or carbohydrate in the milk determines a great deal of the sensory qualities of dairy products.

3.2.4. Taste

The taste scores of dahi prepared from cow and buffalo milk are represented in **Table 2.** In the present experiment, the taste score for buffalo milk dahi prepared with the addition of culture was significantly higher than cow milk dahi (P>0.05). But the score for buffalo and cow milk dahi prepared without the culture are similar (P>0.05). This result indicates that the high fat content in buffalo milk contributes to the taste, sweetness, and texture of dahi. According to Alimoradi *et al.* (2013), fat has a favourable impact on the rating of taste and quality of dahi.

Moreover, the type of milk, starter culture, and manufacturing procedure all affect the dahi's taste and flavour (Younus, 1998). This statement also agrees with our findings, as Dahi made from cow and buffalo milk with the addition of starter culture got a better score than those without the addition of culture.

3.3. Chemical Parameters of Dahi

3.3.1. Acidity

The acidity of dahi prepared from cow and buffalo milk are represented in **Table 3.** The acidity of cow milk dahi was significantly higher than buffalo milk dahi ($P<0.05$). These results of the acidity content of dahi are in the nearest value with the findings reported by Nahar *et al.* (2007) as 0.82±0.04 for cow milk dahi and 0.74±0.06 for buffalo milk dahi. Although in contrast to Cardoso *et al.* (1991) the acidity of buffalo milk Dahi was 1%. The length of storage, starter culture type, postproduction management and incubation conditions all have an impact on the acidity of dahi.

Table 3: Comparison of dahi prepared from cow and buffalo milk with and without culture

Parameters	Cow milk		Buffalo milk		Level of significance
	With culture (Mean ± SE)	Without culture (Mean ± SE)	With culture (Mean ± SE)	Without culture (Mean ± SE)	
Acidity (%)	0.85^{a}±0.008	0.79^{ab}±0.012	0.75^{bc}±0.015	0.73^{c}±0.030	0.01 (*)
Fat (%)	4.70^{c}±0.058	4.63^{c}±0.033	9.06^{a}±0.088	8.83^{b}±0.070	<0.001 (**)
Protein (%)	5.00^{c}±0.00	4.91^{d}±0.00	5.54^{a}±0.003	5.44^{b}±0.003	<0.001 (**)
Total Solids (%)	31.02^{c}±0.013	29.91^{d}±0.003	49.23^{a}±0.008	48.36^{b}±0.003	<0.001 (**)
Ash (%)	0.80^{b}±0.003	0.79^{b}±0.005	0.99^{a}±0.005	0.98^{a}±0.003	<0.001 (**)

^{abcd} = Different letters in a same row differ significantly

SE= Standard Error; Level of significance: * = Significant at 5% level, ** = Significant at 1% level.

3.3.2. Fat

The fat percentages of dahi prepared from cow and buffalo milk are represented in **Table 3.** Here, both with and without the addition of culture, the fat content of buffalo milk dahi was significantly higher than that of cow milk dahi (P>0.05). Cow and buffalo milk Dahi, according to Akin *et al.* (1995), contains 4.9 and 9.08% fat, respectively. According to Rashid and Miyamoto (2005), the fat content of cow milk Dahi in Bangladesh ranged from 3.00 to 4.75%.

Figure 7: Buffalo and cow milk dahi (with the addition of culture)

Figure 8: Buffalo and cow milk dahi (without the addition of culture)

3.3.3. Protein

The protein percentages of dahi prepared from cow and buffalo milk are represented in **Table 3.** In this study, the protein content of buffalo milk dahi was significantly higher when compared with the addition of starter culture in cow milk dahi and with the addition of buffalo milk dahi (P>0.05). In the case of dahi prepared from without the addition of starter culture, the value of buffalo milk dahi was significantly higher than cow milk dahi (P>0.05). According to Chakraborty and Ali (1998), cow milk and buffalo milk Dahi comprised 4.22-4.44% and 5.1% protein, respectively.

Castaneda *et al.* (1991) reported that 4.68% of the protein contained in dahi. The value of the protein content of curd is influenced by the total solid content of milk as well as the degree of volume reduction of milk.

3.3.4. Total solids

The total solids percentages of dahi prepared from cow milk and buffalo milk are represented in **Table 3.** Total solids content in buffalo milk Dahi was significantly higher than cow milk dahi (P>0.05) due to the increased level of solids in buffalo milk. The total solid content of buffalo milk Dahi, as noted by Chakraborty (1998), ranged from 30 to 73%, which is consistent with our experimental findings. Moreover, the total solids content of cow milk dahi was found to range from 26.92 to 43.04%, with a mean value of 34.64%, in accordance with Ghosh and Rojorhia (1984). The findings of the present study also agree with this result.

3.3.5. Ash

The ash content of dahi prepared from cow milk and buffalo milk are represented in **Table 3.**

The ash content of buffalo milk dahi was significantly higher than cow milk dahi (P>0.05)). Compared to cow milk, buffalo milk had more total solids. As a result, buffalo milk dahi had higher ash content. Buffalo milk dahi (ash content: 0.98±0.06) had a greater ash level than cow milk dahi (ash content: 0.809±0.04), according to a study by Nahar *et al*. (2007). Rahman (1998) found that cow milk dahi contained 0.825±0.06 per cent ashes, and the results for the cow milk dahi (with and without the addition of starter culture) were in agreement with his findings.

Conclusion

The ongoing study of dairy product fermentation is of vital importance for enhancing food chain quality and management. The quality of dahi depends on a variety of components, which influence consumer acceptance. From the results of this study, it can be concluded that dahi made from buffalo milk is of higher quality and has a more nutritious composition. Therefore, dahi of a satisfactory grade can be easily prepared from both cow and buffalo milk. It will not only promote better use of it but also minimise the added burden on cow milk.

References

Aggarwala, A. C., & Sharma, (1961). A Laboratory Manual of Milk Inspection. Bombay, Calcutta, New Delhi, India.

Akter, N., Nahar, A. M., Islam, N., Al-Amin, M. (2010). Effects of different level of starter culture and sugar on manufacturing characteristics of Misti Dahi (Sweet Yoghurt). *Journal of Bangladesh Agricultural University.* 2010; 8(2): 245-252.

Akin, N., Rice, P., & Holdich, R. (1995). The vacuum filtration of yoghurt. *Cultured Dairy Products Journal*, 30: 2-4

Alimoradi, A. H., Ali, S., Ardakani, Y., Khosravi, H. M., Daneshim, M., & Shirzadi, A. (2013). Using of Sesame oil as Fat Substitute in yoghurt. *World of Science Journal*, 6(2): 208-212.

AOAC, 1990. Official Methods of Analysis. 15th Edn. *Association of Official Analytical Chemists, Washington*, DC., USA., pp: 200-210.

Bin, A. H., Gujar, B. V., Padghan, P. V., Thombre, B. M., & Khandare, N. O. (2003). Studies on some physico-chemical properties of crossbred (holdeo) cow milk. *Indian Journal of Animal Research*, 37: 48-50

Cardoso, F., Iniguez, C., & Morgado, R. (1991). Effect of heat treatment on firmness of yoghurt made from buffalo milk. *Revista Cubana de Alimentaction-Y-Nutrition,* 5: 114-117

Castandeda, F. C., Hombre, M. R., & Rajas, C. I. (1991). Effect of heat treatment as firmness of yogurt made from buffalo milk. *Revista Cubana de Alimentaciony Nutrition*, 5(2): 114- 117.

Chakraborty, M. (1998). A study on the preparation of dahi from whole milk of cow, buffalo and their different proportionate mixture. MS Thesis, Bangladesh Agricultural University, Mymensingh, Bangladesh.

Cheng, H. (2010) Volatile flavor compounds in yogurt: a review. *Critical Reviews Food Science and Nutrition,* 50: 938-950.

Bhattarai, R. R., Das, S. K. L. (2013). Scientific Study on Indigenous Technology of Dahi Making of Eastern Nepal. *Journal of Food Processing & Technology,* 4: 253

FAO/WHO. Joint FAO/WHO working group report on drafting guidelines for the evaluation of probiotics in food. London, Ontario (Canada). Guidelines for the evaluation of probiotics in food. Joint working group report on drafting. London, Ontario, 2002, 1-1.

Ghosh, J., & Rojorhia, G. S. (1984). Chemical microbiological and sensory properties of misti Dahi in Calcutta. *Asian Journal of Dairy Research*, 6: 11

Hanl, X., Lee, F.L., Zhang, L., & Guo, M. R. (2012). Chemical composition of water buffalo milk and its low-fat symbiotic yogurt development. *Functional Foods in Health and Disease*, 2:86-106

Howlett, J. (2009). Functional foods from science to health and claims. *ILSI Europe*

Islam, M. N., Hossain, M. S., Rashid, M. H., Siddiki, M. S. R., Khan, M. S. R., Parvin, F. (2016). Preparation of dahi from buffalo milk and blends with soy milk. *Bangladesh Journal of Animal Science,* 44 (3): 137-142.

Mustafa, M. M. H. (1997). A study on the preparation of fruit dahi (yogurt). *M.S. thesis*, Dept. of Dairy Science, Bangladesh Agricultural University, Mymensingh, Bangladesh

Nahar, A., Al-Amin, M., Alam, S. M. K., Wadud, A., & Islam, M.N. (2007). A Comparative Study on the Quality of Dahi (Yoghurt) Prepared from Cow, Goat and Buffalo Milk. *International Journal of Dairy Science,* 2: 260-267.

Park, Y. W., Juarez, M., Ramos, M., & Haenlein, G. F. W. (2007). Physico-chemical characteristics of goat and sheep milk. *Small Ruminant Research,* 68: 88-113.

Rahman, S. M. R., (1998). A study on the manufacture and shelf-life of jack fruit Dahi (Yoghurt). M.Sc. Thesis. Bangladesh Agricultural University, Mymensingh, Bangladesh.

Ramasamy, T. K., Suyambulingam, K. (2015). Molecular characterization of *Lactobacillus* spp. from Indian curd and its Antagonistic effects on Uropathogens of Diabetic patients. *International Research Journal of Biological Science,* 4(8):14-22.

Rashid, M. H. & Miyamoto, T. (2005). Quality evaluation of traditional fermented milk "Dahi" in Bangladesh. *Milk Science,* 54(1): 29-36.

Siddiky, M. N. A. (2020). SAARC Dairy Outlook Compiled and Edited by Nure Alam Siddiky.

Venkateshaiah, B.V., Kempanna, C., & Jayaprakash, M. H., (1996). Effect of different levels of fat, S.N.F and acidity on the sensory qualities of frozen yoghurt. *Indian Journal of Dairy and Biological Sci*ence, 7: 38-40.

Wilt, T. J., Shaukat, A., Shamliyan, T., Taylor, B. C., & MacDonald, R., (2010). Lactose intolerance and health. No. 192 (Prepared by the Minnesota Evidence-based Practice Center under contract no. HHSA 290-2007-10064-I.) AHRQ Publication No. 10-E004.Rockville, MD. *Agency for healthcare research and quality.*

Yesmin, M., Rakib, M. R. H., Hossain, A., Khan, A., & Islam, M. (2016). Determination of appropriate level of fat in milk for the production of good quality dahi. *Asian Journal of Medical and Biological Research,* 2: 253.

Yoganandi, J., Mehta, B., Wadhwani, K., Darji, V., & Aparnathi, K. (2015). Comparison of physico-chemical properties of camel milk with cow milk and buffalo milk. *Journal of Camel Practice and Research,* 21: 253-258.

Younus, M. (1998). A comparative study on the quality of dahi (yogurt) available in Mymensingh Town. M.S Thesis, Department of Dairy Science, Bangladesh Agricultural University, Mymensingh.

Acknowledgement

The author wishes to express his gratitude to Almighty "Allah," the greatest of all beings and creator of the universe, for his incomprehensible grace and incredible generosity in enabling the author to complete the work.

The author takes great delight in expressing her sincere thanks and obligation of gratitude to her respected teacher and supervisor Md. Manirul Islam, Professor and Head, Department of Animal Science and Nutrition, Chattogram Veterinary And Animal Sciences University, whose ingenuous and scholastic advice, judicious recommendations, constructive criticism and untiring assistance have guided the author from the beginning to the completion of this work.

The author acknowledge the teachers and staffs, Department of Dairy and Poultry Science, for their cooperation to complete this study

The author expresses his genuine gratitude and respect to the honourable teacher Prof. Dr. Mohammad Lutfur Rahman, Dean, Faculty of Veterinary Medicine, and Prof. Dr. A. K. M. Saifuddin, Director of External Affairs, Chattogram Veterinary and Animal Sciences University for proceeding with this internship program.

Biography

I am Afrah Shahadat, daughter of Shahadat Kabir and Selina Akter.I passed my Secondary School Certificate (SSC) examination from Moheshkhali Island High School(2014) and Higher Secondary Certificate (HSC) examination from Cox's Bazar Govt. Women College(2016). Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University. In future I would like to work as a veterinary practitioner to serve the animal health and public health as well.