

## Original Article

# Price variation and production-related aspects of sweetmeat shops at Mymensingh city in Bangladesh

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### ABSTRACT

A survey was conducted based on structured questionnaire during the period of May–June 2016 at some selected sweetmeat shops in Mymensingh municipality to collect data regarding the location of sweetmeat shops, their product types, price variation, source of milk, waste disposal system, and related problems of the business. Survey data were analyzed critically and found that the shopkeepers of different sweetmeat shops received their raw milk from farmers (87.5%) and goals (12.5%) for manufacturing of various dairy products. The mean prices/Kg (in BDT) of *misty (rashogolla)*, *malaikary*, *chomchom*, *danadar*, *kalojam*, *channar polau*, *amirty*, *sandesh*, *laddu*, *dahi(sweet)*, *dahi(sour)*, *rashomalai*, *low sugar dahi*, *rajvog*, *kadom vog*, *porabari chomchom*, *lalmohon*, *krishno kadom*, *dudh balusai*, *baby sweets*, *khir mohon*, *badami sandesh*, *sponge rashogolla*, *dudh peyara*, *kachagolla*, *maya sandesh*, *rom III monada*, *kacha sandesh*, *channar amirty*, *barfi*, *gurer sandesh*, *khir vog*, and *sada kalo misty* were 158, 200, 170, 166, 173, 240, 170, 400, 130, 165, 97, 311, 167, 200, 200, 160, 170, 180, 150, 300, 350, 350, 280, 400, 400, 400, 500, 500, 170, 450, 450, 400, and 200, respectively. Among the selected shops, 62.5% dispose their waste through drain to the sewerage system and 37.7% sell to fish hatchery. In this study, several problems of sweetmeat producers were found. About 25% of producer had the problems such as lack of skilled worker, preservation problem, and high price ingredients; and 62.5% said lack of raw milk; 50% of the producers mentioned raw milk quality and high price of raw milk; 37.5% claimed worker's high salary demand; and 12.5% of the producer had to bargain with customer to get exact price. Among the sweetmeat shops, most profitable item was malaikary for 75% of the shops, danadar and rashogolla for 37.5% shops, and chomchom for 25% shops. These information can provide valuable baseline for improving the overall condition of sweetmeat manufacturing and price variations between shops in the study area.

**Keywords:** Sweetmeat shop, price variation, waste disposal, production-related aspects

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## INTRODUCTION

Milk and milk products are valuable source of nutrients in the diet of humans. The uniqueness of milk as an ideal food is known to people from different cultures over the world and it is the essential only food that all mammals consume during their early days. The chemical composition of milk and its derivatives has been discovered by recent advances in dairy chemistry, however, the important role milk plays in human nutrition and as a supplementary feed for animals was known long before it came under the scrutiny of the science of chemistry. The richness of milk is the greatest weakness of

milk in itself,<sup>[1,2]</sup> because it is very perishable due to microbial alterations. To save milk from putrefaction and to enjoy amazing taste of milk and milk components in a different form, several milk products have been intentionally or accidentally developed throughout the world.

The most practiced modification of milk-based product making is the sweetening by additional sugar or by microbial fermentation and changing the physical structure from liquid to solid or semi-solid forms. The basic sweetmeat preparation in the Indian subcontinent is chhana (Curd/Cheese) based. The different forms, colors, shapes, tastes, and flavors come

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from processing of chhana under different time-temperature combinations and sugar-syrup-based processing. The popular sweetmeat items in Bangladesh are *misty (rashogolla)*, *malaikary*, *chomchom*, *danadar*, *kalojam*, *channar polau*, *amirty*, *sandesh*, *laddu*, *dahi (sweet)*, *dahi (sour)*, *rashomalai*, *low sugar dahi*, *rajvog*, *kadom vog*, *porabari chomchom*, *lalmohon*, *krishno kadom*, *dudh balusai*, *baby sweets*, *khir mohon*, *badami sandesh*, *sponge rashogolla*, *dudh peyara*, *kachagolla*, *maya sandesh*, *monada*, *kacha sandesh*, *channar amirty*, *barfi*, *gurer sandesh*, *khir vog*, *sada kalo misty*, *rasamonjory*, *balish sweet*, and many more. Sweetmeats are important sociocultural component of everyday life of people of Bangladesh. Bangladeshi sweetmeats are popular also across other countries of the world. A huge variety of sweetmeats is produced in our country; but some traditional items are mostly popular all over the world. They are mostly different from other according to their sizes, colors, and tastes. A number of famous and legendary sweet brands (MilkVita, Banoful, Bikrampur, Vaggaykul, Baghabarighat, Matribhandar, Arong, etc.) have been developed all around the country which being celebrated all over the world.<sup>[3]</sup>

Bangladesh is one of the most densely populated countries in the world with more than 163 million people<sup>[4]</sup> mostly living in the agriculture-based rural areas (76%),<sup>[5]</sup> however, recently, diversified economy and improved transport facility have increased movement of people between rural and urban areas for business or even daily shopping purposes. Mymensingh is one of the oldest districts (recently declared as a city corporation) of Bangladesh which covers an area of around 4363 square kilometers with a population of about 461,414 (<https://populationstat.com/bangladesh/mymensingh>). Greater Mymensingh region is very famous for its traditional sweetmeat specialties such as *Muktagachha's monda*, *Tangail's chamcham*, and *Netrokona's balish sweet*.

Sweetmeat shops of Mymensingh are famous across the other part of Bangladesh by their name for the range of products they make and for the quality of the products. Taste, nutrition, and prices are the most important determinants for a sweetmeat item to get popularity among consumers. The sweetmeat sector of Mymensingh is contributing a lot in regional economy and culture, and the country's economy and diversity as well. It is also creating new opportunities to expand milk value chain from the milk producers to retail markets and consumers. A significant number of people involved in this sector. For these reasons, it is needed to know the proper condition of this sector. At present, sweet making industries are also one of the well-known income generating industries that have created employment opportunities<sup>[6]</sup> directly and indirectly for both rural and urban people. Hence, it is necessary to know the present situation of sweetmeats shops and related problems. The main objective of this study was to know the existing production aspects and price differences of sweetmeats available in Mymensingh city.

## MATERIALS AND METHODS

### Study Area and Duration

The present study was conducted at different selected sweetmeat shops in Mymensingh city of Bangladesh. Data collected for this study happened from May to June 2016.

### Selection of Milk Products

We have considered all range of products manufactured at different sweetmeat shops in Mymensingh city. However, final analysis was restricted only to the products made by the selected sweetmeat shops.

### Age Selection of Sample and Sampling Technique

In this study, eight sweetmeat shops for milk products were selected and each shop was considered as a sampling unit. Sweetmeat shops were randomly selected from different locations of Mymensingh city, however, a preliminary shortlisting of shops was made based on the priority of product range and popularity.

### Preparation of Survey Schedule

The survey schedule was constructed in a way that better serve the objectives of the work. A primary schedule was developed for demo purpose and data were obtained from non-designated sweetmeat shops to test the weakness and strength of the prepared schedule regarding information collection. The completeness and correctness of the interview schedule were arbitrated by the advisory committee, suggested that sections were added and unnecessary parts were deleted. After crucial amendments, the modified schedule was adopted and rearranged in a simple manner to avoid misunderstanding and to get accurate response. The final interview schedule was prepared by keeping in mind the following things such as (i) price of sweetmeat product, (ii) sources of milk, (iii) profitable sweetmeat item, and (iv) waste disposal/management system.

### Collection of Data

The entire survey was conducted after the preparation of the final questionnaire. The study was based on sweetmeat products (some of the product range is displayed in Figures 1 and 2) and data were collected from the selected sweetmeat shops by direct interview. A single observer collected all data through direct interviewing of respondents.

### Statistical Analysis

Data from different sweetmeat shops were subjected to statistical analysis. Collected data were processed, tabulated, and analyzed in accordance with the objectives of the study. Analysis was mainly done using MS Excel (Microsoft Corporation, 2017).

### Problems Faced during Data Collection

- The sweetmeat shopkeepers did not give much time to collect data.



Figure 1: Different sweetmeat items at Rom III in Mymensingh



Figure 2: Different sweetmeat items at Anil Ghosh Sweets in Mymensingh

- Some shopkeepers were reluctant to give accurate information in some cases.
- The sweetmeat shopkeepers could not understand this topic or work so it was difficult to convince them to collect data from them.

## RESULTS AND DISCUSSION

For the present study, eight sweetmeat shops at Mymensingh city were selected. The selected shops' information is given in Table 1. It is evident from Table 1 that sweetmeat shops are concentrated at Swadeshi Bazaar, Gangina Par, Station Road, and Natun Bazaar areas in Mymensingh city.

### Information about the Obtained Milk for making Various Products

From this study, it was observed that the shopkeepers of different sweetmeat shops received their raw milk from farmers and all of the raw milk were derived from cow milk [Table 2]. There was no preservation technique followed by the sweetmeat shopkeepers due to regular milk receiving [Table 2]. Most of the milk was coming from Shombhugonj, Char area, Trishal, Churkhai, and other places near Mymensingh municipality area.

### Sweetmeats at Mymensingh City and Price of Individual Products

The mean price per kg for various milk products in different sweetmeat shops is given in Table 3. Preparation of chhana

Table 1: Selected sweetmeat shops and their locations at Mymensingh city

Name of shop	Address
I. Joyguru	Swadeshi Bazer, Mymensingh, Sador
II. Sudhir ghosh	2,Swadeshi Bazar, Mymensingh
III. Maa-moni sweets	1/A J C Goha Road, Mymensingh
IV. Anil ghosh sweets	7 no. Sadeshi Bazer, Mymensingh
V. Krishna kebin	Ganginapar, Asad Market
VI. Rom III sweets and bakery	Natun Bazer, Mymensingh
VII. Charu sweets	Station Road, Mymensingh
VIII. Laziz	Natun Bazer, Mymensingh

Table 2: Source, types, and collection of milk for sweetmeat production

Parameters	Categories	Frequency	Percentage
Milk types	Cow	8	100
	Buffalo/goat	0	0
	Total	8	100
Source of milk	Farmers	7	87.5
	Goala	1	12.5
	Total	8	100
Preservation of raw milk	No	8	100
	Yes	0	0
	Total	8	100
Frequency of raw milk receiving	Regular	7	87.5
	One day pausing	1	12.5
	Total	8	100

required the manufacturers about 4.5–6 L of milk for 1 kg of product. Previous whey water was used by manufacturers to separate chhana. In most cases, sweetmeat seller told that the prices did not remain same for all the year round due to fluctuation of raw milk price and availability. This fluctuation of price for individual milk products ranges from BDT 10–15 Tk. Price of products essentially determines the sale of milk and milk products, place and personal values of the seller also play key roles in this regard.

Homer and Kahle<sup>[7]</sup> identified that personal values have the great ability to influence aspects of selling products. Therefore, personal and social values are one of the most vital persuasive factors that affect the consumers' need to satisfy over and done with purchase and consumption behaviors<sup>[8]</sup> and thereby enhance ultimate sweetmeat products selling.

The mean price/Kg (in BDT) of *misty (rashogolla)*, *malaikary*, *chomchom*, *danadar*, *kalojam*, *channar polau*, *amirty*, *sandesh*, *laddu*, *dahi (sweet)*, *dahi (sour)*, *rashomalai*, *low sugar dahi*, *rajvog*, *kadom vog*, *porabari chomchom*, *lalmohon*, *krishno kadom*, *dudh balusai*, *baby sweets*, *khir mohon*, *badami sandesh*, *sponge rashogolla*, *dudh peyara*, *kachagolla*, *maya*

**Table 3: Sweetmeat items and their price/kg (in BDT) at different shops**

Name of the product	Price/kg (Taka)								Mean±SD
	Shop I	Shop II	Shop III	Shop IV	Shop V	Shop VI	Shop VII	Shop VIII	
Rashogolla	100	180	200	100	190	180	160	150	158±36
Malaikary	200	200	200	200	200	200	-	200	200±**
Chomchom	170	170	160	170	180	-	-	170	170±6
Danadar	170	170	160	170	180	160	160	160	166±7
Kaloram	170	180	-	170	180	180	160	170	173±7
Channar polau	200	-	-	200	260	300	-	-	240±42
Amirti	170	-	-	-	-	-	-	-	170±*
Sandesh	400	400	-	400	-	-	400	400	400±0
Laddu	130	-	-	130	-	-	-	-	130±**
Dahi (sweet)	160	160	160	160	160	180	160	180	165±8.66
Dahi (sour)	100	100	-	100	100	80	100	100	97±7
Rashomalai	300	300	-	300	320	360	200	400	311±57
Low sugar dahi	-	150	-	-	150	200	-	-	167±24
Rajvog	-	-	-	-	-	200	-	-	200±*
Kadom vog	-	-	-	-	-	200	-	-	200±*
Porabari chomchom	-	-	-	-	-	160	-	-	160±*
Lalmohon	-	-	-	170	180	160	-	170	170±7
Krishno kadom	-	-	-	-	-	180	-	-	180±*
Dudh balusai	-	-	-	-	-	150	-	-	150±*
Baby sweets	-	-	-	-	-	300	-	-	300±*
Khira mohon	-	-	-	-	-	350	-	-	350±*
Badami sandesh	-	-	-	-	-	350	-	-	350±*
Sponge rashogolla	-	-	200	-	-	360	-	-	280±80
Dudh peyara	-	-	-	-	-	400	-	-	400±*
Kachagolla	-	-	-	-	-	400	-	-	400±*
Maya sandesh	-	-	-	-	-	400	-	-	400±*
Rom III monda	-	-	-	-	-	500	-	-	500±*
Kacha sandesh	-	-	-	-	450	550	-	-	500±50
Channar amirti	-	-	-	170	-	-	-	-	170±*
Barfi	-	-	-	-	450	-	-	-	450±*
Gurer sandesh	-	-	-	-	450	-	-	-	450±*
Khira vog	-	-	-	-	400	-	-	-	400±*
Sada kalo misty	-	-	-	-	220	-	-	-	200±*

\*Indicates that the product is produced only by single shop, \*\*no variation in price

*sandesh, rom III monada, kacha sandesh, channar amirti, barfi, gurer sandesh, khira vog, and sada kalo misty* was 157.50, 200.00, 170.00, 166.25, 172.86, 240.00, 170.00, 400.00, 130.00, 162.86, 97.14, 311.43, 166.70, 200.00, 200.00, 160.00, 170.00, 180.00, 150.00, 300.00, 350.00, 350.00, 280.00, 400.00, 400.00, 400.00, 500.00, 500.00, 170.00, 450.00, 450.00, 400.00, and 200.00, respectively. It is evident from Table 3 that *Monda* and *Kacha Sandesh* are the most expensive sweetmeat item in the selected study area, whereas *dahi* is

available with lowest price offer among all other sweetmeat products under consideration. The average price differences between sweetmeat shops for same named products varied between 6 and 80 BDT, however, there was no price variation for products such as *malaikari, Sandesh, and laddu*. Non-significant price variation between shops has been previously reported.<sup>[9]</sup> The highest variation in price was found for sponge rasagolla, followed by *rsamalai, kacha Sandesh, channar polau, and rasagolla*. The variations in prices between shops could be



attributed to the differences in quality<sup>[10]</sup> and the brand value of the shops.

### Waste Disposal

Most sweetmeat seller dispose waste in drain sewerage, some sell this in fish hatchery. In Table 4, we see 62.5% shops

**Table 4: Waste disposal system at different sweetmeat shops**

Shop name	Drained to sewerage line	Supply to fish hatchery
Joyguru	No	Yes
Sudhir Ghosh	Yes	No
Maa-moni sweets	No	Yes
Anil Ghosh sweets	No	Yes
Charu sweets	Yes	No
Krishna kebin	Yes	No
Rom 3 sweets and bakery	Yes	No
Laziz	Yes	No
Total Shop = 8	Total Yes=5	Total Yes=3
Percentage of total	62.5%	37.5%

**Table 5: Profitable sweetmeat item for selected shops**

Profitable item	Positive respondent	Percentage
Chomchom	2	25
Danadar	3	37.5
Malaikary	6	75
Rashogolla	3	37.5
Total respondent	8*	100

\*More than 1 item was indicated profitable by some of the shopkeepers

**Table 6: Problems of the producer mentioned during the study period**

Problems	Related respondent	% of total
Lack of skilled person	2	25
Lack of raw milk	5	62.5
Low quality of raw milk	4	50
High price of other ingredient (sugar)	2	25
Preservation of sweetmeat product	2	25
Worker high salary demand	3	37.5
Bargaining with customer to get exact price	1	12.5
High price of raw milk	4	50
Total respondents	8*	

\*Response was overlapping between shopkeepers

dispose their waste through drain and 37.5% shops sell it to fish hatchery. Disposal through drainage system could be a great risk for the natural water bodies if sweetmeat shop originated wastes are not treated properly to reduce the amount of organic matter that will reduce the water quality through high biological and chemical oxygen demand (BOD and COD). The use in fisheries and their final disposal should be reviewed too.

### Profitable Sweetmeat Item

Profitable item is not the same in sweetmeat shops. Among sweetmeat shops, most profitable item was chomchom for 25% shops, danadar and rashogolla for 37.5% shops, and malaikary for 75% of the shops [Table 5].

### Problem Faced by the Producers

During survey, several problems of the producers were identified. The problems are shown in Table 6. About 25% of producer had the problems such as lack of skilled worker, preservation problem, and high price ingredients, and 62.5% said lack of raw milk, 50% of the producers mentioned raw milk quality and high price of raw milk, 37.5% claimed worker's high salary demand, and 12.5% of the producer had to bargain with customer to get exact price. If the manufacturer's problems are solved, this sweetmeat sector will be sustainable and healthier in future.

## CONCLUSION

There are considerable variations in the product range, pricing, sourcing the raw material, and disposal of waste between sweetmeat shops in the Mymensingh city of Bangladesh. The results obtained in this study might be taken as indicative for providing valuable information to the sellers and consumers regarding price of milk products, profitable item of milk products, and the general aspects of sweetmeat production in Mymensingh city of Bangladesh.

## AUTHORS' CONTRIBUTIONS

M. A. Islam conceptualized the design of the experiment and developed the structured interview schedule, and N. Jahan collected data for this experiment. Data organization, analyses, and drafting of the original manuscript were conducted by M. A. Islam, M. I. Omar, and N. Jahan. T. Chanda and M. A. Matin contributed to the writing: Critical discussion, editing, and fitting the manuscript into present format.

## CONFLICTS OF INTEREST

The original draft of this manuscript was prepared and submitted to the Faculty of Animal Science and Veterinary Medicine of Patuakhali Science and Technology University as a research report by N. Jahan under the supervision of M.

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