



Value added milk and milk products

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India has emerged as the largest producer of milk in the world with a production of over 78 millions tones of milk annually. Half of the milk produced in India is use as fluid milk and the rest is converted into various value added products. The pattern of milk utilization for various dairy products has been shown in the Table 1.

Table 1 : Milk utilization pattern (%) in India

| Sr. No. | Milk products | 1961 | 1985 | 1995 |
|---------|---------------|------|------|------|
| 1. | Liquid milk | 45.7 | 46.0 | 45.7 |
| 2. | <i>Ghee</i> | 31.8 | 28 | 27.5 |
| 3. | Butter | 6.4 | 6.5 | 6.5 |
| 4. | Khoa | 4.7 | 5.5 | 6.5 |
| 5. | <i>Dahi</i> | 8.1 | 7.0 | 6.9 |

The supplies of milk in the cities and town become very expensive as a result of high cost of procurement, processing, packaging and the accompanying milk sour losses. Conversion of milk into milk products in and around milk production area is least expensive infrastructure and equipment and low operating and overhead cost. Milk products offer several technological 7 social benefits, generate employment, increases income and improve the dietary status of the masses.

Milk is considered as native's most perfect food. It contains almost all those essential nutrients that are required for the growth of human body. Especially for children which otherwise are not available in any other single food. Milk in its natural form is, however, not considered suitable for many people, for example, those suffering from heart ailments and who do not like the taste of milk as such. All these problems can be contrasted by manufacturing special milks such as low fat milks, flavoured milk etc. The art of preparing sweets from surplus milk was developed centuries ago. Lack of cooling facilities to keep milk fresh in warm climate resulted in the diversion on milk for the preparation of various milk products with comparatively longer shelf life. Milk food delicacies are value added products generating high profits. The demand of milk sweets is influenced by the national

and social values attached to each of them. To meet the increasing demand for the milk products in the urban market, it is necessary that one should diversify into manufacturing milk products which are essentially value added products.

Processed milk :

1. Toned milk
2. Double Toned Milk
3. Standardized Milk
4. Flavoured Milk

| Dessicated products | Coagulated products | Fermented products | Phase inversion of fat and fat dehydrates |
|---------------------|---------------------|--------------------|---|
| Khoa | Cheese | <i>Dahi</i> | Butter |
| Basundi | <i>Paneer</i> | <i>Lassi</i> | <i>Ghee</i> |
| Rabri | | Misti Dohi | |
| Khurchan | | Chhach | |
| Malai | | Chakka | |

- By products : 1. Whey
2. Butter Milk

Value added products can be classified in two:

Long shelf life products : Includes milk powder, *Ghee* and butter

Short shelf life products: These are called fresh products and marketed with least possible costs, includes, special milks, *Lassi*, shrikhand, curd, mava and channa based sweets. The products are locally marketable and existing infrastructure can be used for their manufacture: *Special milk* : When natural constituent of whole milk have been altered by addition removal exchange and /or

Table 2 : Some milk based delicacies

| Sr. No. | Khoa Based | Chhana Based | Cereal Based |
|---------|------------|--------------|--------------|
| 1. | Burfi | Rasgolla | Kheer |
| 2. | Peda | Sandesh | Paysam |
| 3. | Gulabjamun | Pantao | Phirmi |
| 4. | Kalajamun | Ras-Malai | |
| 5. | Kalakand | Rajbog | |

treatment, the resultant milk is designated as special milks. Manufacture of special milks offers numerous advantages that are broadly related to dietary, cost and scarcity aspects. Some of these are discussed here:

Toned milk : Refers to milk obtained by addition of fresh/reconstituted skim milk to buffalo whole milk. Single toned milk shall have minimum of 3.0% fat and 8.5% SNF and double toned milk shall minimum of 1.5% fat and 9.0 SNF by toning of buffalo milk, fluid milk supply, can be increased by about 100 to 150% and the consumer price could be reduced by 50-70%.

Flavoured milk: It has good consumer acceptance on refreshing and nourishing milk beverages and also act as great sales bailed. Cow or buffalo milk to which flavour either natural or synthetic has been added. Sugar and colour may or may not be added depending upon the requirements.

Heat desiccated products : Khoa prepared by open pan evaporation of milk serves as a base for a variety of Indian Sweets e.g. *Burfi, Peda, Gulabjamun*, etc. these sweets have great social, cultural and religious significance in the country. It is estimated that about 50-55% of milk production is consumed by traditional sectors in Halwais (Banerjee, 1997).

Heat and acid coagulated products :

Chhana : A well known traditional Indian dairy product is obtained by acid coagulation of hot mil. The product is used extensively on a base and for the preparation of a large variety of Indian delicacies namely rasagolla, sandesh, rasmalai, rajbhog and many more such products. Channa although differs from paneer in that no pressure is applied to remove the whey from it. The PFA specification for these products is identical i.e. moisture not more than 70% and fat not less than 50% on dry basis.

Ghee : The importance of ghee as a milk fat product is recognized from the prehistorical days. *Ghee* is usually prepared from cow and buffalo in mixed milk. Milk is separated in to cream, which may be directly converted into ghee. It can be first converted into butter and then into ghee. Milk fat is rich source of Fat soluble vitamin. Essential fatty acids and other growth promoting factors.

Addition of *Ghee* to foods improves the satiety value and consumers enjoy finally on eating.

Fermented products :

Srikhand : An acid coagulated and sweetened product. It is a popular delicacy in the Indian states of Gujarat, Maharastra and Karnatka. This product is prepared by lactic acid coagulation of milk and expulsion of whey from the curd, followed by mixing with sugar, flavouring and species. High demand of this product during summer season. Ingredient 34-405 mishri, 4-6% fat and 10-12% MSNF (Aneja *et al.*, 1977, Miyani, 1982 and Patel, 1982).

By product:

Whey : Whey is highly nutritious by product of cheese/*Paneer* and casein industry. It contains about half the milk solids containing most of the lactose, about 1/5th of the protein and most of the vitamins and minerals. India's estimated whey production is 1000 million kg. In India some attempts have been made to utilization of whey through the production of whey down the drains amounts merely to economic loss for the dairy industry and also causes pollution hazards. Under this background, main emphasis be given for the production of the value added products like ethanol, single cell protein, lactose, baker's yeast, methane etc. By fermentation of whey. Whey is a valuable by product of dairy industry and its full potential should be exploited instead of simply drinking it. Hence for the effective control of environmental pollution and to save the precious solids getting drained whey should be utilized for the production of value added product.

Conclusion : Milk is considered as nature's most perfect food but the basic limitation of milk is its perishable nature. Due to this it is essential that milk should be divested for the production of various value added products. Value added products generate high profits/ the demand of milk sweets also influenced by the nutritional and social values attached to each of them.

To meet the increasing demand, for the milk products in the urban areas, it is of utmost importance that one should manufactures the milk products which are essentially value added products.

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