



Mechanization of Indigenous Dairy Products

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India is the largest milk producing country in the world with 140 million tonnes per year. It has a rich culture of consumption of vast range of indigenous dairy products. About 50-55% of total milk produced is diverted for preparation of indigenous dairy products. These products enjoy tremendous mass appeal among both rich and poor. There is a wide variety of indigenous dairy products which may be categorized as heat desiccated (*peda, burfi, gulabjamun, pantua* etc.), heat acid coagulated (*chhana, paneer, sandesh* etc.), fat churning (*makkhan, malai* etc.), fermented (*mishti doi, shrikhand* etc.), heat clarification of butterfat (*ghee*), cereal incorporated (*kheer, paysum* etc.) and frozen (*kulfi, kulfa, malai ka burf* etc.). It has been estimated that market for indigenous dairy products is about ₹ 3000 billion/year. Because of immense popularity, there is an excellent potential for its industrial production. The age old technique of sweet making has to be converted into a feasible technology so equipment can adopt that for its mass production.

Although processing about 20-25% total milk produced, the Indian dairy industry has seen tremendous growth by assuring a dependable source for supply of milk to the urban consumers throughout the year. On the other hand, still majority of farmers who are actual milk producers have not reaped any benefit. Indigenous dairy products have played a pivotal role in preservation of milk solids and in promotion of its consumption among predominantly vegetarian population. Thus, it is able to provide many essential proteins, vitamins/nutrients to nutritionally deficient people. The Indian dairy industry must be striving hard to percolate the advantages of white revolution to the milk producers/farmers also. This dream would remain unfulfilled until or unless equipment of small capacity is not developed for production of indigenous milk products at village level itself.

The mechanization of indigenous dairy product processing is indispensable. The huge demand of quality indigenous dairy products presents a great opportunity for scale up of production by mechanization. Dairy industry has to supply the required dairy products not only from the country but also from outside the country. In India, with increasing population, urbanization, industrialization and improved purchasing capacity, the demand for quality traditional milk product has increased enormously. Despite largest milk producer, India's share in world's dairy export market is very meager. The lack of specified quality standards, microbiological limits and presence of food additives and pesticide residues are the major bottlenecks. Because of higher expenditure requirement, the organized dairy with mechanized production can fulfill these and other sanitary and phyto-sanitary quality parameters of international trade regime. With added advantage of Indian diaspora around the world, huge export earnings can be realized in near future.

Among the vast range of indigenous dairy products *shrikhand, gulabjamun, peda, misti doi* are so far the only products that have truly been mechanized and produced on an industrial scale. Many investigations were carried out for mechanization of other indigenous products like *khoa, ghee, paneer, rasogolla, sandesh* etc. Several equipments have been developed by R/D institutions and dairy industry. They have reported the development of equipment for their mass production also. Some production systems (comprising of some equipments) have been developed which are capable of manufacturing two or more indigenous products. The Indian dairy industry needs such type of systems which are capable to fulfill ever growing demand of indigenous dairy products.

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