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### **Milk and milk products: Their contribution in the nutritional and health security**

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Adequate nutrition and a healthy productive population are increasingly recognized as an important prerequisite for poverty reduction and economic and social development. Nutrition experts recognize milk and milk products as important constituents of a well-balanced and nutritionally adequate diet. Milk is a complex food containing numerous nutrients which includes water, carbohydrate (lactose), fat, protein, minerals and vitamins. The factors that influence nutrient composition of milk are species differences, stage of lactation, breed differences, number of parturitions (parity), seasonal variations, age and health of the animal, feed and management effects. Most of the constituents in milk do not work in isolation but rather interact with other constituents. In this regard, milk products complement and supplement nutrients available from grains, legumes, vegetables, fruits, meat, seafood and poultry. Social and technological developments of the past few decades have significantly influenced the variety of dairy products available. Some of the nutrients can be altered using biotechnological and nanotechnological interventions in the dairy products to make them bio-available. Based on available knowledge on therapeutic aspects of milk and milk products, it can be safely concluded these products should be consumed not only for meeting nutritional requirement but also for their role in prevention of disorders leading to obesity, osteoporosis, dental caries, poor gastrointestinal health, cardiovascular disease, hypertension and colorectal cancer. Whey proteins, lactose derivatives, milk proteins derived bioactive peptides and bioactive milk lipids have been targeted by the food formulators and health professionals for the manufacture of novel foods. Further, milk mining for the isolation of such bioactive molecules through appropriate technological interventions has gathered momentum in the recent past. It can be envisaged that in the near future several breakthrough products based on these ingredients will be launched in the Indian markets. They could be targeted to the elderly and immune compromised people as well as to improve performance and prevent diet-related chronic diseases. Moreover, today's consumers receive nutrition information and dietary advice on dairy consumption from a variety of sources. The subject of health and nutrition claims has received considerable attention from both the industry sector and the regulators. The general consensus amongst the legislators is that the regulatory framework should protect the consumer from false information, promote fair trade and encourage innovation in the food industry that can ultimately translate into healthier lifestyles. In many parts of the world, milk and dairy products are highly valued and have an important role in both household food security and also in income generation. Ensuring that dairy-industry programs are inclusive of smallholders thus has significant food-security and poverty-reduction implications, producing high-quality milk and dairy products that are or will be demanded by consumers can be a challenging and complex task. To achieve this, consumers, industry and governments need up-to-date information on how milk and dairy products can contribute to human nutrition and how dairying and dairy-industry development can best contribute to increasing food security and alleviating poverty.

#### **Biography**

Bimlesh Mann is a Principal Scientist and Head of Dairy Chemistry division at NDRI, Karnal, India. Her area of research interest is Milk Protein/Bioactive peptides/Functional Foods. She was also awarded as NDRI "Best Teacher Award (PG) 2012-13" on recommendation of Academic Council of National Dairy Research Institute. She has more than 28 publications in reputed journals.

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