



The Controversy of Raw Milk vs. Pasteurized Milk for Human Consumption

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“The story of milk goes back to the beginning of the civilization itself. Cattle were domesticated even in the prehistoric times and milk was one of the most essential of all foods. Because milk is one of the most complete single foods available in nature for health and promotion of growth, the cow is considered as a sacred animal and even worshipped in India” [1].

The fluid secretion of mammary glands (with no antibodies) of all mammals is called Milk. Its primary function is to fulfill the nutritional needs of the respective young ones. Also different species' milk vary in composition to suit their nutritional requirements, although the principal sources of milk for human consumption is cow [2].

Milk is the most perishable food item and spoils within 30 minutes after its extraction if no appropriate treatment is given and the reason behind such a low shelf life is the action of microbes already present in milk. Milk serves as an optimum medium for the growth microorganisms. Milk composition solely depends on the blood constitutes in the udder of the animal (cow). As the animal is milked, milk gets contaminated with bacteria from the walls of the passageways, for example - teat canals; exterior of the animal's body, utensils and also from the handler of the milk [1].

This calls for the immediate storing and cooling of milk to 4 degree Celsius in order to arrest or lower the microbial activity to minimum. At room temperature a number of fermentative changes will take place, such as, bacteria will act on lactose sugar and will actively produce lactic acid hence, giving milk a sour taste followed by casein precipitation (curling). When the acid strength increases in the milk it creates a flourishing environment for moulds and yeasts already present in milk. This is then followed by degradation of milk solids and hence complete spoilage of milk.

Apart from the spoilage microorganisms, unpasteurized milk is the source of many milk borne pathogens and pose a serious threat to human lives. For instance- *Listeria monocytogenes* (listeriosis);

Mycobacterium bovis (tuberculosis); *Salmonella* (diarrhea and high fever); *Yersinia enterocolitis* etc [3].

Pasteurizing the raw milk makes it free from disease causing and spoilage microbes and hence results in safe consumption and improved keeping quality. Pasteurization is the different combinations of two and only parameters i.e. Time and Temperature which means the process is only effective when both parameters are taken into consideration and not on either of them alone. For example 63 degree Celsius for 30 minutes or 72 degree Celsius for 15 minutes or 93.4 degree Celsius for 3 seconds.

Pasteurization doesn't add any objectionable cooked flavor and no significant nutrient loss is done to milk, except for a slight loss of heat labile vitamins like thiamine and ascorbic acid but this is more than compensated by making milk free from pathogenic microorganisms.

Milk in its natural state is meant to be consumed by the young ones of respective mammal directly from the glands and hence no question of shelf life or spoilage arises but when it comes to commercial production and its transportation then milk has to undergo certain processes to make it safe for human consumption and increased keeping quality. Therefore, as a responsible food technologist I strongly recommend the consumption of only pasteurized

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