Technology for Long Shelf Life Paneer

Paneer is one of the traditional dairy products of India which is analogous to the western cottage cheese. It is mainly produced by local dairies or milk product distributors or cottage scale industries. Paneer acts as the base or filler for several popular Indian delicacies such as shahi paneer, matar paneer, karahi paneer, paneer samosa, paneer bhurji, paneer paratha, paneer methi paratha and many such culinary dishes and recipes. However, paneer is mostly stored and marketed unpacked which leads to the irreversible and undesirable changes. Improper packaging leads to increase in acidity and moisture loss. It is observed that the short shelf life of paneer is mainly due to surface spoilage. The surface spoilage of paneer is mainly caused by the growth and development of bacterial slimy layer on the surface which result in increase in acidity of paneer. This makes the product unacceptable in the market. Other adverse changes taking place during storage of paneer include wheying-off during storage, distribution and marketing, changes in sensory quality i.e. development of acidic flavor, changes in textural quality i.e. crumbliness/brittleness and fragility due to moisture loss. That is why short shelf life is one of the most serious problems faced in marketing and distribution of paneer to the distant markets.

Efforts have earlier been made by various research workers using various preservation techniques like chemical preservatives, drying, etc. to improve the shelf life of paneer. But presently, there is no technology available solving the problems related to paneer as stated above. Alternatively, use of non-biodegradable packaging material in foods due to increased environmental awareness formed a new era for edible films and coatings. Antimicrobial films and coatings are innovative concept under the global scope of active packaging which has been developed to delay, reduce, or even inhibit growth of microorganisms on the surface of packaged food. An edible coating/film can simply be defined as a thin continuous layer of edible material formed on or placed between food or food components. The most important functionalities of an edible film or coating include control of mass-transfer, provide mechanical integrity or handling characteristics to the food, selective barrier to oxygen, carbon dioxide and improving sensory appeal, etc.

Thus, keeping in view the above mentioned considerations and with the aim to preserve paneer, an appropriately formulated edible coating and process for its application is developed. Edible films and coatings are produced from edible biopolymers and food grade additives. Film forming biopolymers can be proteins, polysaccharides (carbohydrates and gums) or lipids. So, an edible coating was developed by utilizing a suitable source of carbohydrate, protein and a plasticizer.

Advantages:

1. The invented process yields paneer with high acceptability to the consumers on account of its glossy appearance with no surface slime.
2. Besides, preventing moisture loss in unpacked distribution and marketing, application of edible coating also reduced the chances of wheying-off during storage and transportation.
3. The shelf life of coated paneer is increased by 2-3 folds both at room and refrigeration temperature offering convenience under ambient conditions.
4. The process for preparation and application of edible coating on panner cubes is simple and economic.
5. Edible coating formulation meant for coating food products such as paneer provides effective moisture barrier and antimicrobial properties.
6. Increased shelf life and less chances of wheying-off in flexible packaging offers a great deal of consumer convenience and scope of marketing that could be well exploited by cottage scale industries and traders.