Preservation of Jaggery Against Melting and Discolouration

Jaggery is one of the traditional sweetening agents having several benefits as compared to other sweeteners like sucrose (crystal sugar) and artificial sweeteners. It is a natural sweetener made from sugarcane juice simply by evaporation and is an integral part of the rural diet in many countries. It contains an enormous wealth of minerals, protein, vitamin and useful sugar. Jaggery, being a low cost, traditional, eco-friendly and nutritive sweetener, offers a viable alternative to sucrose. It may look less attractive than crystal white sugar but is a healthier alternative. In Ayurveda, jaggery is considered to be the best of all sugarcane preparations and as 'medicinal sugar'. In fact, jaggery has a mineral content approximately 50 times greater than refined sugar and five times more than brown sugar. Jaggery making is an important cottage industry in India from time immemorial but unfortunately very little has been organized to streamline the production, storage and marketing.

Despite of being one of the old and large agro-processing cottage industries in India, the method of manufacture, handling and storage of jaggery by small scale manufacturers is not satisfactory and results in considerable spoilage and losses. It has been estimated that more than 10 per cent of jaggery produced in the country worth Rs. 40 crores is lost every year due to deterioration. Composition and storage conditions of jaggery (both physical and chemical) are important factors that determine the keeping quality of product. Farmers try to dispose of their produce because of change in color of jaggery from golden yellow to dark yellow/brown color and therefore are afraid of getting low price for their produce as the prices are fixed in the market on visual appearance (color) and texture basis by the local dealers. Various storage and preservation methods have been followed by the farmers and traders depending on the climatic conditions, local customs and resources. Also in market places local dealers/retailers used to keep jaggery in gunny bag and place them in ordinary go-downs for preservation like all other commodities. However, all these methods proved to be unsatisfactory and results in considerable spoilage and losses of different types.

Hence, it is evident that jaggery, despite of a low cost, eco-friendly and a viable alternative to sucrose, suffers with storage problems like running-off/liquefaction (melting) due to microbial attack, loss of weight and deterioration in color, especially during rainy season. This situation calls for immediate measures to solve the problems of storage of jaggery so that farmers can store the produce and sell it in off-season ultimately fetching good prices.

The above mentioned problems could be overcome by applying WPC based edible coating on jaggery followed by vacuum packaging and storage under controlled conditions of temperature and relative humidity. Therefore, keeping in mind the above facts a novel technology is developed to preserve jaggery by applying an edible coating followed by packaging with or without vacuum for the same purpose. Edible film and coating enhances the quality of food products, protecting them from physical, chemical and microbiological deterioration. It can protect food products from moisture migration, microbial growth on the surface, light induced chemical changes, oxidation of nutrients, etc.

Advantages:

1. The coated jaggery could be well stored during rainy season without having adverse storage problems.
2. Edible film and coating enhances the keeping quality of jaggery by protecting it from chemical and microbiological deterioration.
3. Edible coating coupled with appropriate packaging treatment results in improved characteristics of jaggery with respect to appearance.
4. The process for preparation and application of edible coating on jaggery is simple and economic.
5. Edible coating formulation meant for jaggery provides effective moisture barrier and antimicrobial properties.