

JAGGERY AS SUGAR REPLACER IN BAKERY PRODUCTS

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JAGGERY AS SUGAR REPLACER: AN OVERVIEW

Jaggery is a nutritive sweetener, non-centrifugal and non-refined sugar known as Gur in India. It is widely made in Asia and Africa. It is prepared by evaporating water from sugarcane juice or palm sap and sold in many forms, like solid, liquid and granular. An advancement in research and growing awareness among the consumers about healthy diet lead to the jaggery gaining popularity as an alternative source of sugar in multiple value added products. Also, sugar is widely used as a sweetener in the manufacture of variety of bakery products for e.g. cake, biscuits, muffins, bread and cookies etc.

Using jaggery in place of sugar is healthier substitute as it has many antioxidants and nutrients (vitamins and minerals). It is a sweeter option and provides better functional properties such as more moistness, flavour and darker colour to the baked goods. Thus, jaggery can be used as nutritious and healthier sugar substitute in baking. Besides this, it is also used to make traditional drinks (tea and coffee) and for several non-food purposes like dying fabric. Also in India, it is mixed with nuts and healthy seeds like peanuts, chia seeds, almonds, sesame, white gram and in milk to make traditional sweets. Sugar provides an empty calorie thus replacing it with jaggery should be in moderation as it provides calories with nutrition. In contrast, eating too much sugar from any source can cause obesity, heart disease and diabetes. While replacing it with jaggery provides several health benefit like improves digestion, liver and digestive health, also prevents anaemia. During the current covid scenario many people are using jaggery for improving the immune system and better health.

APPLICATION OF JAGGERY IN BAKERY PRODUCTS

A vast research is going on the use of jaggery in the baking process to avoid excess sugar especially for diabetic patients. Sugar is the main ingredient in the baking and a decrease in amount of sugar with jaggery results in changes in the processing properties of dough, product texture, color and taste. Thus, a complete replacement of sugar with jaggery requires an intensive study of the rheological, physico-sensory and storage characteristics of the developed food product and its effects on the food ingredients used in the formulation. Jaggery was used in preparing muffins by replacing it with 42, 63 and 84 per cent of sugar. The muffins prepared had good taste and quality characteristics with 84 percent jaggery replacement. The jaggery muffins resulted in higher moisture, ash, lower protein, fat and total sugar contents as compared to sugar muffins.

A composite millet palm jaggery muffins was also prepared using composite millet flour with palm jaggery by replacing sugar at different levels. The muffins prepared with palm jaggery had higher moisture content/water activity, darker crumb and crust colour due to the brown colour of palm jaggery. Similar study was carried out to develop low calorie baked products like cookies and muffins by replacing sugar with natural sweetener jaggery (0, 25, 50, 75 and 100 per cent level). Cookies with 25 per cent jaggery were found to be the best. A cake was also prepared by replacing sugar with 20, 40, 60, 80, and 100 per cent jaggery. The specific volume of cake decreased and became more compressed while water absorptive properties also gradually increase with raising the levels of refined sugar (sucrose) substitution with Jaggery, and therefore, these dough needed more water, to have the same consistency. Hence, it can be concluded that Jaggery can be used as alternative natural sweetener for the replacement of sugar in several bakery products in near future. It could also serve as product diversification and will open prospects for the small entrepreneurs in terms of economic benefits.

