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Stevia: Alternative Natural Sugar for Dairy Industry

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Abstract

India has become the diabetic capital of the world with about 70 million people already inflicted with the disease. There is a significant market for sugar replacements with fewer or no calories because of rising health consciousness. The high sugar content is a constant problem for the dairy industry. To solve this, different dairy products have been combined with stevia, due to the low sugar content. Growing incidences of diabetes and obesity, surging demand for natural sweeteners, rising demand for stevia application in dairy industry, the increasing number of stevia-based product. Non-surprisingly, stevia is a rising star in the sweetener space. When compared to other sugar alternatives, products containing stevia have a better sweetening potency and more customer acceptability.

Keywords: Stevia, Sucrose, Overall acceptability

Introduction

Stevia continues to become more prevalent as an ingredient in dairy products, because it allows food and beverage manufacturers a way to reduce added sugar levels naturally without affecting taste or texture. Stevia (*Stevia rebaudiana*) a natural sweetener plant having medicinal and commercial importance is being used all over the world. It is a perennial shrub that is a member of the Compositae family (Asteraceae). Stevia is a plant that is indigenous to Brazil and Paraguay and it is frequently referred to as "the sweet herb of Paraguay." The leaf extracts comprise mainly of glycosides namely, stevioside and rebaudioside. These glycosides are 200 and 300 times sweeter than sucrose.

In India, stevia has been introduced in the last decade because of high demand potentials particularly considering the huge diabetic population. It is offered in the market in a variety of forms, including tablets, liquid and powder. Glycosides present are not metabolized and pass out unabsorbed from the body. Stevia is very sweet but virtually no calories. When consumed,

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it does not cause a glycemic reaction. Without any restrictions on shelf life, stevia remains stable during food processing steps like pasteurization, baking, and canning.

Application of stevia in dairy products

Konde *et al*. (2014) prepared coffee flavour *ice-cream* containing 2.25 per cent of stevia powder was found to have good colour, appearance and texture. Alizadeh *et al*. (2014) formulate and developed low calorie and low glycemic index (GI) of soft *ice-cream* by using sucrose and stevia. Mehrotra *et al*. (2014) conducted a study on *shrikhand* preparation by using stevia powder with sugar replacement. The mean sensory score for overall acceptability of *shrikhand* showed that the replacement of sugar up to 30 per cent with stevia leaf powder scored the highest.

Goyal and Samsher (2015) prepared herbal *burfi*. Herbal *burfi* samples prepared with 90 per cent *khoa*, 10 per cent stevia powder and 2 per cent safed musli powder ratio were found best and scored highest overall acceptability. Ozdemir *et al*. (2015) prepared *ice-cream* using stevia as a sweetener. They concluded that, stevia could be used for the production of *ice - cream* for diabetic patients. Tawade (2015) prepared best quality *burfi* by using 5 per cent of stevia liquid and 95 per cent of *khoa*. Mane (2017) prepared sugar free *burfi*. The overall acceptability of sugar free *burfi* prepared from *khoa* prepared with 5 per cent fat containing milk (99.5:0.5, *khoa* and stevia powder) was significantly superior and more acceptable than other levels of fat and stevia powder.

Mane (2018) made an effort to standardize the optimum level of stevia powder in the preparation of *shrikhand*. 1.5 % Stevia powder secured highest overall acceptability score (95.99) over other treatments. Pandey *et al.* (2018) prepared *shrikhand* using buffalo milk blended with stevia leaf powder. The *shrikhand* produced by using 2 per cent stevia leaf powder was more acceptable. Robins *et al*. (2019) developed low calorie goat milk *ice cream* using stevia leaf powder as a low-calorie sweetener. Tondare and Hembade (2021) prepared *amrakhand*, good sensory results were found at 70% of sucrose replacement by stevia leaf extract in dietetic *amrakhand*.

Benefits of stevia

1. Nature-derived, from the stevia plant
2. Zero calorie ingredient
3. High-intensity sweetness

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4. Safe for use by diabetics
5. Sustainable sourcing
6. Tooth-friendly
7. Favorable consumer perception

Conclusion:

Sweeteners are an excellent alternative to develop low calorie products. They effectively replicate perception offered by sugar, thus producing foods with less sugar with similar consumer acceptance. Stevia is a valuable ingredient to reduce sugars in dairy applications. Natural sweetener stevia is best alternative to diabetic patients and health-conscious individuals.

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