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## “Revolutionizing Food Waste: The Emergence of Date Seed Powder”

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### Introduction

In the current scenario, people are more concerned about their health and aim to prevent diseases through the more incorporation of more natural ingredients into food products, called functional foods. Therefore, there has been considerable interest in developing a transformative approach to improve human health and prevent diseases through a balanced diet. In this context, date seeds (*Phoenix dactylifera L.*), belonging to the family *Arecaceae*, which was once considered a major waste of the date processing industry, is gaining popularity in the food sector because of its nutritional, functional and sustainable properties. Incorporating Date Seed Powder into a variety of food products allows for the sustainable utilization of the entire fruit. Date seed is considered as one of the oldest fruit plants; mostly it was grown in the Middle East. India is one of the largest producers of dates in the world, with major date-growing regions including Maharashtra, Gujarat, Rajasthan, and Punjab. Dates are mostly grown in India on an area of 12493 hectares in the Gujarati district of Kutchh, where 85351 tons of dates are produced annually (Al-Khalili *et al.*, 2023). Their common names are Dates in English, Khajur in Hindi, Khejoor in Bengali, Kharjooora in Telugu, and Khajur/Kharik in Marathi.

Date seeds are the by-products, of the date industry, which produced more than 9 million tons of date fruits 2018 (Najjar *et al.*, 2022). The by-products of date processing factories are referred as date pits, which is usually seeds, kernels and stones etc. The fruit is composed of a fleshy pericarp and seeds, which constitute approximately 10-18 per cent of the total fruit weight. Due to good flavor and high nutritional value, date seed powder is gaining importance. This product is also gaining popularity in dairy and food industry.

Several experiments have proven that the date seed powder helps to regulate the oxidative stress, inflammation and immunity. It is also a powerful source of antioxidants, phenolic compounds and flavonoids.

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(Figure 1- Date seed powder)

Date Seed Powder (DSP) has been added to functional dairy products such as yoghurt, cheese, ice cream, dairy desserts, gluten-free formulations, coffee substitutes, smoothies, energy bars and bakery products, effectively improving their sensory quality and preserving the end product. DSP gives a rich brown color when roasted, which works as a wonderful coloring agent for baked or snack foods. Furthermore, it supports the development of low-fat and fortified dairy products without compromising their texture or flavor. Currently, with the growing consumer demand for health-oriented foods, DSP represents a favorable approach for the food and dairy sectors.

DSP represents a promising frontier in sustainable innovation, offering functional, nutritional, and environmental advantages, with continued and novel innovation, DSP can become a key ingredient for future health-conscious people.