

CANE JAM

An innovative product for entrepreneurship



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Licensing

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Details, Technology information and Licensees
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Training offered for licensees on cane jam production at ICAR - SBI



Cane Jam technology released by
Honorable Union Minister of Agriculture & Farmers' Welfare
Shri Narendra Singh Tomar Ji in 93rd Annual General Meeting
of the ICAR Society on 26-03-2022

Patent information

Indian Patent Application No. 202041021560 title: "A semisolid sugarcane juice composition" inventors: Suresha, G S, Lavanya, R, Hari, K, Murali, P and Bakshi Ram (2020).

Cane Jam Licensing

The novel technology process was well received by the entrepreneurs, Start-ups and innovative farmers. ICAR-SBI has licenced this technology to entrepreneurs in the country.



Introduction

India is producing surplus sugarcane and sugar. Therefore, diversifying the cane juice is inevitable and profitable to sugarcane farmers. Sugarcane offers a greater opportunity for value addition and product diversification due to its varied number of byproducts after postharvest processing of juice. Sugarcane juice contains 15-20% total soluble solids and the juice extracted from sugarcane is consumed as energy drink all over the world. Sugarcane juice is being sold by street vendors throughout India and served fresh with the addition of lime and ginger. Mostly, sugarcane juice is used for production of sucrose by the sugar factories. Limited amount of cane is crushed for Jaggery production. Therefore, value chain approach in sugarcane is need of the hour. Cane jam is a unique and novel value added product from sugarcane juice developed by ICAR-Sugarcane Breeding Institute. Till date there is no sugarcane juice based jam product available in the Indian market.

Sugarcane Processing for Jam Production

Unlike fruit jams available in the market, processing of sugarcane juice based jam is most challenging due to its sugar composition. Also, freshly extracted juice cannot be stored due to its high susceptibility for enzymatic browning. This is a most common chemical process occurs in all fruits and vegetables by the enzyme polyphenol oxidase. In addition, sugarcane juice is more prone for inversion, an enzymatic reaction occurs after crushing due to presence of acid invertase enzymes in the juice which causes change of colour from green to brown. Hence, various novel and niche products are being developed by using sugarcane juice for longer shelf life embedded with the quality of juice.

Sucrose is a major sugar present in the sugarcane juice which is highly tends for crystallization during high temperature boiling process. So technological intervention is required for controlled boiling, monitoring the brix content during whole processing period, optimization of thickening agents concentrations and their dissolution, fixing the Brix^o for final setting point to prevent crystallization in the jam product.

In this direction, process and methodology for cane jam production was standardized at ICAR-SBI for various processing parameters such as juice filtration, arresting the

anti-browning effect by the addition of anti-browning agents, temperature controlled boiling of juice, dissolution of thickening agents in acidified medium, fixing the juice Brix and boiling temperature for addition of thickening agents and final setting point of jam. Cane jam is purely obtained from sugarcane juice and easily blended with flavouring agents. For flavored variants of cane jam, any permitted natural flavoring agent can be added to the product. To explore the variability in jam flavors, we carried out cane jam preparation using different natural flavors such as ginger, cinnamon, cardamom, lemon, pineapple and mango. The developed process has attained ideal consistency, taste, colour, flavour and texture.



Different Flavours of Cane Jam

Benefits of Sugarcane Jam

- ✓ Cane jam is a unique product from sugarcane juice which can be used in daily diet. There is no such product available in the food basket as of now. The product has huge potential like the fruit jam. Total sugars in the cane jam are around 46.5% which is comparatively lower than fruit jams (50-65%) available in the consumer market.
- ✓ Cane Jam is a rich source of minerals and vitamins compared to commercial fruit jams available in the market.
- ✓ Prepared with purely sugarcane juice and free from man-made sugars.
- ✓ Best suited for multi flavour variants of cane jam from single source.
- ✓ In commercial jam production 50:50 (approx.) ratio of fruitpulp and white refined sugars are being used, whereas in cane jam the process does not involve sugar or any other sweeteners.
- ✓ Low calorific value in cane jam (262 Kcal/100 g) compared to commercial fruit jams (272 Kcal/100 g).
- ✓ Benefit cost analysis of Cane Jam technology is advantageous for commercial scale production. Farmers can get Rs 25,000/- net revenue per tonne of sugarcane if the sugarcane is diverted for cane jam production.

1st time in the food market

Uses of Cane Jam

Sugarcane jam composition is a unique value added product from sugarcane juice which is useful in healthy regular breakfast with bread, chapatti, dosa, croissant, BBQ sauce, cake layering, pan cake, donuts, pudding, puff pastry, muffins, frankie, fruit salad dressing and etc. Unlike fruit jams, Cane jam composition is purely from sugarcane juice, without the addition of white sugar or invert sugar or any artificial sweetener. The nutritional composition of the Cane Jam is given in the Table 1.

Table.1. Nutritional composition of Cane Jam

Parameters	Content	Parameters	Content
TSS (°Brix)	67.0	Dietary fiber (g/100g)	3.50
Titrateable acidity (%)	0.75	Protein (mg/100g)	Nil
Ascorbic acid (mg/100g)	5.90	Sodium (mg/100g)	28.40
Total sugars (%)	46.50	Potassium (mg/100g)	747.70
Pectin (added) (%)	0.75	Calcium (mg/100g)	7.20
Ash (%)	2.90	Phosphorous (mg/100g)	70.90
Water Activity (a _w)	0.84	Magnesium (mg/100g)	100.40
Moisture (%)	26.0	Zinc (mg/100g)	1.10
pH	4.54	Copper (mg/100g)	0.09
Total fat (%)	0.55	Vitamin B group (mg/100g)	57.52
Energy (kcal)	262.00	Vitamin E (mg/100g)	5.73