

Spectrum

From grassroots to galaxies



End of the road for Flamingo City in Gujarat's Kutch region? P4

Leaves of hope for the 'tree of life'

COCONUT REVIVAL Heard of coconut sugar or capsules of virgin coconut oil? The Central Plantation Crops Research Institute has developed novel products that emphasise the health advantages of coconut and in turn, benefit growers, writes Ronald Anil Fernandes

A mention of coastal Karnataka brings to mind images of sunny beaches and tall coconut trees. The tree, known as kalpavriksha for its multiple uses, forms an essential component of life in this part of the state. In fact, the state contributes significantly to India's premier position in coconut production in the world. But, studies indicate a negative trend in the consumption of this versatile tree crop in the recent times. Reports also indicate a drastic decline in the use of coconut oil in the country, while the use of palm oil has gone up exponentially.

Determined to enhance the utility value of coconut, the Central Plantation Crops Research Institute (CPCRI) has been promoting it as beverage, nutraceutical product and a suitable ingredient for icecream, chips and *laddus*. The research institute has also made sweet sap products such as coconut sugar, coconut jaggery, coconut honey and coconut syrup among other nutritional value products on a trial basis.

Established in 1970 as one of the agricultural research institutes under the Indian Council of Agricultural Research, the CPCRI conducts research on coconut, arecanut and cocoa to make them more viable for farmers. Headquartered at Kasaragod, the institute has three regional stations and three research centres. A regional station (Vittal) and a research centre (Kidu) exist in Dakshina Kannada.

Nutrition capsules

Virgin coconut oil (VCO), which is being popularised by the CPCRI, is said to offer more health benefits than ordinary coconut oil. Major differences between ordinary coconut oil and virgin coconut oil lie in the physical form of the raw material used, the method of extraction and the nutritional advantage. While the ordinary one is extracted by cold compression or cold milling of dried kernels, VCO is extracted from the milk obtained from fresh coconuts. VCO contains healthy, healing, medium-chain triglycerides. The oil, fortified with Vitamin E and polyphenol (antioxidant) is in great demand in the international market. "Large proportion of lauric acid present in this oil gets converted into mono-



NEW POSSIBILITIES Well-equipped VCO production unit at CPCRI; a coconut plantation in coastal Karnataka; packed virgin coconut oil (below). PHOTOS BY AUTHOR

laurin after consumption," says CPCRI director P Chowdappa. He claims that consuming virgin coconut oil helps improve immunity and reduce obesity. Thus, VCO is one such product that could contribute to the nut's increased use. The institute has developed two processes, hot process and fermentation, to produce virgin coconut oil. Currently, the technology is used by twelve agribusiness startups.

Software engineer Mahesh Bhat worked in a reputed company for 15 years before he took up virgin coconut oil production. He developed interest in VCO when he

learnt that it has an edge on other edible oils. After studying the technologies developed by the CPCRI, he decided to make its use. Subsequently, he quit his job and started VCO production in November 2013. At present, he produces 30 litres VCO per day and sells in different sized pouches ranging from

30 ml to one litre. His market has extended from Mangaluru, Udupi and Manipal in Karnataka to Tamil Nadu and Maharashtra.

Arun Kumar Rai, who runs a production unit of virgin coconut oil in Puttur since last two years, has faced difficulties in marketing the product. Growing demand for desiccated coconut powder (dehydrated), another product of his firm, has helped him to strike a balance. Though there are a couple of other VCO production units in the state, the product is yet to make its mark in the market.

As of now, Arun Kumar sells VCO through a marketing firm in 500 ml and 100 ml pouches. While 500 ml pouch costs Rs 500, 100 ml pouch costs Rs 110, as against the ordinary coconut oil which is sold anywhere between Rs 180 and Rs 200 per litre.

Current efforts

The institute has developed a technology to produce VCO in capsule form. The CPCRI has transferred the technology of making capsules to three companies, but they are yet to start commercial production. The CPCRI has also developed a bottling technology to preserve *kalparasa*

(*neera* or palm nectar). *Kalparasa* is a sap extracted from the inflorescence of coconut. Sweet in taste and oyster-white in colour, it is generally extracted before sunrise and is susceptible to natural fermentation at ambient temperature after two hours of extraction. The technology developed by the CPCRI has helped increase *kalparasa's* shelf life (once fermented, *kalparasa* becomes toddy) and preserve it for 45 days in refrigerator (by maintaining temperature at 6 ° to 8 °C) without any additives.

The institute has a well-equipped research station with a range of machinery such as tender coconut punch, snow ball tender coconut machine, coconut chips slicing machine, coconut chips packaging machine, coconut testa removing machine, coconut grating machine, coconut pulverising machine, coconut milk extractor, virgin oil cooker, fermentation tank, drier and incubator. Each equipment is designed as per the requirement.

"Of the total coconut production in the country in the last decade, only five per cent was consumed as value-added products. CPCRI's efforts would facilitate better consumption, thus bringing better prospects for farmers," opines P Chowdappa.

If these efforts yield positive results, and attract active participation of farmers, days may not be very far, when the *kalpavriksha* lives up to its name, literally, again.



A demo programme at CPCRI.