



Beulah Rose

FIELD NOTES

For Niyati Rao, who is busy setting up a fine dine in Mumbai, it's a mad rush to get home-grown ingredients. She has worked at Wasabi at The Taj in Mumbai, and knows that importing ingredients like kombu, nori or wakame wouldn't be a sustainable business model, nor would it bring 'Indian-ness' to a platter. It's for chefs like her and for those who want to harness the untapped seaweed business that the government has come up with an investment of some ₹640 crore. It hopes to increase seaweed production to 10 crore tonnes by 2025 under the Pradhan Mantri Matsya Sampada Yojana.

For now, Niyati's hunt has ended at AquAgri, a private seaweed processing unit, in Tamil Nadu's Manamadurai town. From here, she has been able to procure vast quantities of dry seaweed, and is now experimenting with it in her kitchen. Seaweed, she says, adds a note of piquancy to each dish: as garnish in salad or a sprinkling on a hearty soup, the dense oceanic notes bring a rich umami depth to any vegetarian dish. Even something as ordinary as butter, when infused with seaweed, opens up new gastronomical delights, she says.

#### Stabilising factor

Indians have only just started flirting with the possibility of using the product in the hospitality industry; but

# The blue revolution

Whether in gastronomy or medicine, India is beginning to harness the untapped potential of seaweed

seaweed has long been sourced by the food industry for its stabilising properties. When processed, it loses its pungency, and seaweed products such as agar gel can withstand high temperatures – it can be used as a stabiliser and thickener in pie fillings, icings and meringues. As it is tasteless, it does not interfere with the flavour of the food, and in ice creams it is used to inhibit the crystallisation of ice. Agar-agar, the main ingredient in falooda and jigarthan-da, is a seaweed-based product.

Earlier, seaweed was collected by fishermen through natural harvesting. It was only in 2000 that the Council of Scientific and Industrial

Research-Central Salt and Marine Chemicals Research Institute (CSIR-CSMCRI), along with Pepsico, started cultivating seaweed through the bamboo raft method on an experimental basis. Later, AquAgri joined hands with CSIR-CSMCRI and ICAR-Central Marine Fisheries Research Institute (ICAR-CMFRI) and now, the shoreline in places including Mandapam in Tamil Nadu's Rameswaram are dotted with floating farms of seaweed. Buttressed by studies done by ICAR-CMFRI and CSIR-CSMCRI, fisherwomen in these regions have been trained in cultivating a species of seaweed called *Kappaphycus alvarezii* that yields carrageenan. Carra-



**Empowered**  
(Clockwise from left)  
Seaweed cultivators in Rameswaram; fisherman harvesting seaweed in the Thoothukudi coast; women diving for seaweed in Rameswaram.

■ N. RAJESH,  
L. BALACHANDAR  
& SPECIAL  
ARRANGEMENT



geenan is an additive used to thicken, emulsify, and preserve food and drinks – it's a commercially viable venture.

#### Fertiliser of the future

Alginate, another extract, is used in restructured and reformed food products such as chicken nuggets. As a binder and emulsifier, it helps meat retain its shape. The seaweed extract, when injected into meat, helps retain its moistness and freshness. Suguna Foods and Venky's are other major clients of AquAgri. Although many are wary of using plain dried seaweed in food, cultivation in a controlled environment could result in more people consuming this product packed with vitamins and minerals, say buyers.

Seeing the nutrient value of this

sea vegetable and encouraged by the Indian Farmers Fertiliser Cooperative, AquAgri manufactures a product called Sagarika, derived from the sap of red and brown algae, which acts as a bioenhancer and stimulates the internal growth of plants. Researchers say that an extract from seaweed also helps in the faster germination of seeds, and this was successfully tested on cotton seeds. As organic farming becomes the buzzword, seaweed is becoming the fertiliser of the future.

#### Flavour of the sea

In medicine, research shows a lot of exciting possibilities. ICAR-CMFRI, Kochi, has used seaweed as the main ingredient in various nutraceutical products, from anti-obesity tablets to anti-arthritis and anti-diabetic

pills. At AquAgri, research is on to make a biofilm from seaweed extract, to be used as a dissolvable cast to dress wounds.

Economically, seaweed has empowered women in and around Rameswaram. It is cultivated nine months in a year, and harvested every 45 days; one kilo of dried seaweed fetches ₹50 to ₹55. Jayakumar, principal scientist, ICAR-CMFRI, Mandapam, points out that as the cultivation is less labour-intensive and less-technology driven, it has been taken up by almost 600 women in the region. Industries related to seaweed processing also have a huge potential for those specialising in microbiology, chemistry and food technology.

Tapping into this unrealised potential is the 'Blue Revolution' that the government is hoping for, but increasing production is the challenge. B. Johnson, scientist, ICAR-CMFRI, points out, "What we produce now is not even enough for the domestic market."

The reason behind the slow decline in production, say scientists, is that seaweed cultivation has been going on for the past two decades, decreasing the virility of the seeds. Some want seeds to be imported from the Philippines, and for the government to increase the area under cultivation.

And so, it may not be very long before pouches of dried seaweed jostle for space in supermarket aisles along with casks of seaweed wine. In restaurants around the corner, the menu may well have sushi wrapped in Indian-made nori sheets, each bite bringing in the heady flavour of the sea.

Although many are wary of using plain dried seaweed in food, cultivation in a controlled environment could result in more people consuming this product packed with vitamins and minerals