

Indian corals under attack by alien weed

Coral reefs along the Gulf of Mannar on the southeastern tip of India are under attack by an alien algae, according to a report by Indian marine biologists.

The fast-growing *Kappaphycus alvarezii*, a native of the Philippines, simply smothers the corals to death by covering them like an elastic rubber sheet, the biologists report in the journal *Current Science*.

The algae is commercially cultivated in the open sea by beverage giant PepsiCo's subsidiary Pepsi Foods Limited (PFL) with the help of fishermen with whom the company has a 'buy back' agreement.

The species is a source of carrageenan, a gel-forming agent widely used in the pharmaceutical and food industries. It also gives a liquid bio-fertiliser that the company intends to market.

The Central Salt and Marine Chemical Research Institute (CSMCRI) in Bhavnagar, which imported the alien species in 1997 for experiments in confined waters, says it transferred the material and sold the technology to PepsiCo only after convincing itself that its cultivation would be ecologically safe.

Declared by Unesco as a biosphere reserve, the Gulf of Mannar has a chain of 21 coral-fringed islands running almost parallel to the coastline in a 140-km stretch. The researchers at Thiagarajar College in Madurai who worked in the Kurusadai island found that *K. alvarezii* has virtually entombed the corals.

'No part of the coral reefs was visible in most of invaded sites,' Sivagnanam Chandrasekaran, who led the team, told IANS. He added that what the team found was only the tip of an iceberg.

'Our observations underscore the need for urgent reconsideration of its cultivation in a biologically diverse ecosystem such as the Gulf of Mannar,' Chandrasekaran said.

'Without immediate control measures, the algae may likely spread to other islands.'

Both PepsiCo and CSMCRI agree that patches of drifted *K. alvarezii* are growing on corals in Kurusadai but do not agree on how the algae entered the protected waters.

A PepsiCo spokesperson said the company's cultivation is confined to Palk Bay north of the bioreserve. 'We never went to the Gulf of Mannar itself.'

However, according to CSMCRI, twigs of algae could have drifted from PepsiCo's cultivation sites in Palk Bay into the navigation channel flowing towards the Gulf of Mannar 'since the current flows from Palk Bay towards the Gulf of Mannar during the northeast monsoon'.

CSMCRI Director Pushpito Ghosh recalls the institute having earlier 'collected about 1.3 tonnes of fresh algae in the Gulf of Mannar which got drifted from cultivation farms in Thonithurai in Palk Bay'.

The threat posed by the exotic algae is worrying academics and ecologists alike.

'K.alvarezii proliferates faster than any native species,' Jack Jameson, director of the Tamil Nadu Fisheries College and Research Institute in Thoothukkudi, told IANS. 'I warned them before it was introduced into our waters but nobody listened.'

What worries Chandrasekaran is that the K.alvarezii invasion throughout the bioserve may become a certainty if, due to environmental changes, it switches over to sexual reproduction by spores that can be carried by wind.

'Under the microscope you can see millions of spores,' added Jameson.

Neither PepsiCo nor CSMCRI feels that banning K.alvarezii cultivation is the answer, considering that farming this algae provides a monthly income of Rs.3,000 to Rs.5,000 each to nearly 600 poor families.

'The scientific community should take preventive measures like physically removing the algae from the corals,' said Abhiram Seth, executive director of Pepsi Food Limited.

The Madurai researchers, however, point out that physical removal is ineffective as the algae re-grows within one year. The alternative suggestion of biological control offers least hope as fish do not graze on K. alvarezii as they do on native algae, said Chandrasekaran.

One way to protect the corals in the Gulf of Mannar without affecting the livelihood of the farming community is to cultivate native species instead of the alien K. alvarezii.

'There are about nine species of indigenous red algae capable of yielding carrageenans and PepsiCo may focus on cultivating these,' said Jameson.

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