

# CMFRI scientists unravel genome secrets of the Indian oil sardine

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KOCHI

A team of scientists at the ICAR-Central Marine Fisheries Research Institute (CMFRI) here have decoded the complete genome of the Indian oil sardine (*Sardinella longiceps*) in what researchers have called a milestone in Indian marine fisheries with multiple implications.

This is the first time that the genome of a marine fish species from the Indian subcontinent has been decoded.

## Twin benefits

Indian oil sardine is a must at dinner tables both for the daily fish eaters in Kerala and the gourmets who will swear by the food quality of the fish. Sardine fisheries have been described as carrying twin benefits of providing thousands of mandays of work a year as well as meeting the nutritional requirements of the fish-eating population.



**A first** Decoding the complete genome of *Sardinella longiceps* is termed a milestone in Indian marine fisheries with multiple implications.

The researchers have also identified the genes involved in the biosynthesis of polyunsaturated fatty acids (PUFA) of the oil sardine, offering insights into the genomic mechanisms behind the high nutritional quality of the fish. Oil sardines are a great source of fatty acids, which play a crucial role in maintaining human health.

## Origin of catch

CMFRI scientists said decoding Indian oil sardine genome will also support climate studies, aid the management of fisheries

stock, sharpen sustainability studies and help understand the sustainable environmental and oceanographic parameters. The findings will also help trace the origin of the catch.

The sardines are also an ecologically important part of the marine ecosystem as they form an intermediate link in the food web and serve as prey for larger predators. The genome assembly of the sardines is a valuable tool for studying how fish adapt to climate change, said a statement from CMFRI

here citing the institute's director A. Gopalakrishnan. He called it a "milestone".

## Technology used

The decoded genome is 1.077 GB in size and contains a total of 46,316 protein coding genes. The research accomplishment was realised using cutting-edge next generation sequencing technology by a group of researchers led by Sandhya Sukumaran, principal scientist at the Marine Biotechnology Division of the CMFRI. The results have been published in the journal *Scientific Data of Nature*. Indian oil sardine is a vital fisheries resource in the Indian subcontinent, contributing substantially, approximately 10%, to the total marine fisheries industry in India. One of the findings of the study is that Indian oil sardines exist in two highly distinct stocks, one in the Indian waters and another in the Gulf of Oman.