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The designer clownfish (F4 gen) created by the NBFGR. The researchers have created the fish by cross-breeding orange clownfish amphiprion percula (male) and common clownfish amphiprion ocellaris (female)

In a first, Indian researchers develop designer clownfish

AROCKIARAJ J @Kasaragod

THE ICAR-National Bureau of Fish Genetic Resources (NBFGR) has developed designer clownfish through cross-breeding of two clownfish species, for the first time in the country through hybridisation process. The researchers have created the designer clownfish by cross-breeding orange clownfish amphiprion percula (male) and common clownfish amphiprion ocellaris (female) in their hatchery.

Among the aquarium fish species, clownfishes form an important group that attracts hobbyists/aquarists, because of their mutualistic relationship with sea anemones. Thirty species of clownfish are reported globally. Of this, India is home to 15 species and NBFGR is maintaining all of them at their facility in Annamalai University.

Hybridisation is the process of breeding a species with another species or variant and can occur naturally in the wild or be attempted in captivity. Principal scientist and head of Centre for Peninsular Aquatic Genetic Resources of NBFGR, Kochi, T T Ajith Kumar said, "These designer clowns command a higher market value compared to wild varieties, available in the aquarium trade. We are also planning to provide the designer clownfish to our aquarists," he said. NBGR has the hatchery production technology for over a dozen of clownfish species, using low saline water, which is the major breakthrough in marine ornamental aquaculture in the country. The designer clownfish was created at their hatchery facility at the coastal and marine biodiversity Centre, Airoli, Mumbai.

The research took more than seven years to obtain F4 generation, where the fishes displayed striking patterns that set them apart from their parents, said Ajith Kumar. The molecular analyses revealed that the F4 generations have more genetic similarity with father, A. percula. However, research continues to explore the molecular mechanism of designer clownfish developed in captivity and examine the potential for traits such as vivid coloration and adaptability, he added.

"This is the first time in our country that we have created a designer clownfish," said NBFGR director Kajal Chakraborty.

CLOWNFISH IN AQUACULTURE

- Global ornamental fish trade was worth $5.95 billion dollars in 2023 and is likely to expand at an annual growth rate of 8.5% by 2030
- Ornamental fish trade includes both fresh and marine water organisms
- Most of the marine species are wild caught
- Most of hatchery-produced marine ornamental fishes are clownfish species
- Globally, there are 30 clownfish species, of which India is home to 15