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Occurrence of *Argulus* (Crustacea: *Branchiura*) in fishes of the freshwater reservoirs and aquarium shops of Vadodara, Gujarat (India)

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ABSTRACT

Aquaculture is one of the fastest growing food producing sectors in the world and it is a highly risky business. It is greatly dependent on health of fishes and higher economic losses can be incurred due to disease problems. In India, major freshwater fishes are affected by parasitic diseases. *Argulus* is a major ectoparasite that can cause clinical infestation and moderate to severe disease causing huge losses to the fish farmer or aquaculturist. Moreover, occurrence of *Argulus* has not been investigated in many regions of Gujarat state, India. Their abundance and clinical lesions can reduce the productivity. Hence, a study was undertaken to investigate the presence and abundance of the *Argulus* parasite from the freshwater resources and Aquarium shops, including the cultivable and ornamental fishes in and around Vadodara district, Gujarat (India). A total of 212 specimens of cultivable and ornamental fishes were sampled and subjected to laboratory examination. The parasites were mostly collected from the body's surface. The specimens collected from infected fishes were identified as *Argulus* belonging to Subphylum *Crustacea* and Subclass *Branchiura*. It was observed that *Argulus* affects ornamental fish and IMCs where the total incidence and abundance was observed higher in ornamental fishes (49.50 % and 2.50, respectively) as compared to Indian major carp (IMCs; 25.22 % and 1.59, respectively). Ornamental fishes were infested with a large number of parasites as compared to IMCs. The present study is the first ever report of parasitic infection in freshwater fishes from the study area.

Key words: *Fish parasites, Cultivable and Ornamental fishes, Abundance, Incidence, Argulus*

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A CASE REPORT OF BRANCHIOMYCES SP. INFECTION IN CARP (*CATLA CATLA*) FROM VADODARA, GUJARAT

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Abstract

Nowadays, diseases issue are major concern in fish production. Similar to other animals, fishes also suffer from diseases. The stability of a fish population in particular habit is very often disrupted by various factors viz., disease, habitat destruction, depletion of resources or other application of environmental stressors, which affects our fish diversity and culture practice. The present study highlights the infection of *Branchiomyces sp.* depicting its infestation in the Indian Major Carp, *Catla catla*. *Branchiomycosis,* commonly known as Gill rot, is a fungal disease that infects the gills of the freshwater fishes. It was identified by isolation and histopathological changes of examined gills in *Catla catla*. The infected fishes were suffering from respiratory disorders; gulping air at the water surface, rapid movement of operculum and mass mortality, which resulted in the loss of 95% of fishes from the pond. *Branchiomycosis* is caused by the fungi *Branchiomyces sanguinis* and *Branchiomyces demigrans*. Both species produce branched, non-septate hyphae. Fungal spores are released into the water and transmitted horizontally to other fish. Spores adhere to the gill tissue, germinate and produce hyphae, which penetrate the epithelium and blood vessels of the gill. The disease is characterized by focal areas of infarctive necrosis of the gills. Fungal hyphae develop in lamellar epithelium or penetrate blood vessels causing obstruction, thrombosis and necrosis of gill tissues. The gills appear to be marbled or Grey to white. The histological gill tissue slides were prepared and observed which showed prominent necrosis of the gill filament, species are yet to be identified.

Keywords: *Fish disease, Fungal infection, Branchiomyces sp., Pathology of Disease*

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The occurrence and redescription of cymothoids (Wagele, 1989) parasites in commercially available fishes from markets of Vadodara, Gujarat, India

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Abstract
Parasitic crustaceans infesting fishes excite the interest of researchers all over the world as they have the potential to harm the health of food fishes. Cymothoids are ectoparasitic isopods that parasitize teleost fish in different ways, including freshwater, brackish water, and marine seas. They are found mainly inhabiting the branchial, oral cavities and on body surface of host fishes. Their exoskeletons are stiff, segmented, and they feature two pairs of antennae, seven pairs of jointed limbs on the thorax, and five pairs of branching appendages on the abdomen for respiration.
The protandrically hermaphroditic cymothoid *Mothocya renardi* (Bleeker, 1857) parasitizing the banded needlefish *Strongylura leiura* (Bleeker, 1850), whereas the species *Norileca indica* (H. Milne Edwards, 1840) parasitizing *Rastrelliger kanagurta* (Cuvier, 1816) and *Selar crumenophthalmus* (Bloch, 1793), from the Western coast, India, has been reported. There has been no report of parasitic isopods being found in fish sold in Vadodara's markets. Hence, the aim of this study was to redescribe the two isopod species, *Mothocya renardi* and *Norileca indica*, based on their morphology and meristic characteristics.

Keywords: cymothoids, isopod, fish parasites, taxonomy