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# Gill Rot Disease of freshwater fish *Catla catla* from Karadkhed Dam, Nanded (Maharashtra)

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**Abstract**

Gill rot disease is a fungal infection and its major threat in freshwater aquaculture, that significantly affects the gill structure and respiratory efficiency of freshwater fish, primarly Indian major carps such as *Catla catla*. This study investigates the presence, pathology, and environmental contributors of gill rot disease in *Catla catla* cultured in Karadkhed Dam, Nanded. Field observations, gill sample analyses, and water quality assessments were conducted to determine the causative agents and stressors. The results showed heavy infestation by *Branchiomyces* spp., and also linked to high organic load and poor water management. This study is focousing on the need for improved aquaculture practices, early diagnosis, and preventive care to mitigate economic losses and fish mortality in the region.

**Keywords:** Gill rot disease, *Catla catla*, Branchiomycosis, Karadkhed Dam, Nanded, aquaculture, fish pathology, water quality.

## Introduction

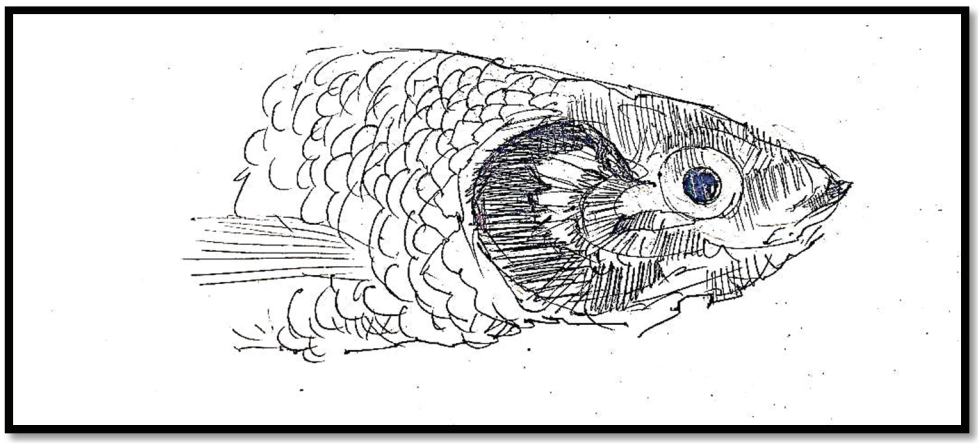
Freshwater fish are an important source of food, income, and nutrition for millions of people, especially in rural parts of India. Among these, *Catla catla*, also known as catla, is one of the most commonly cultured fish due to its fast growth and high market demand (Jena et al., 2001).Gill rot disease, also known as branchiomycosis, it is caused by fungal pathogens *Branchiomyces sanguinis* and *B. demigrans*. It affects the gill lamellae, progressive necrosis of gill tissue , respiratory distress, and mortality, it leads to rotting or decay of the gill tissues. Infected fish may show signs such as difficulty in breathing, reduced feeding, sluggish behavior, and sometimes death (Roberts, 2012). Indian major carps, particularly *Catla catla*, are highly susceptible under poor water quality conditionsThe disease spreads quickly in water bodies with poor water quality, high organic matter, or overcrowding of fish.

## Study Area and Methodology

Karadkhed Dam, located in Nanded district, supports significant inland fish farming. Field investigations were carried out between January and March 2025. Affected *Catla catla* specimens were collected and examined for clinical signs and histopathological changes. Water samples were tested for temperature, dissolved oxygen (DO), ammonia, and organic load.

## Results and Discussion

Infected fish showed classic symptoms—discoloration of gills, excessive mucus, and difficulty in respiration. Microscopy confirmed the presence of non-septate hyphae consistent with *Branchiomyces* spp. Water parameters revealed high levels of organic matter and low DO (<3 mg/L), favorable conditions for fungal growth. These findings highlight poor water management and overstocking as contributing factors. Gill rot poses a serious threat to *Catla catla* aquaculture in Karadkhed Dam. Early intervention, along with responsible water and fish stock management, is essential to prevent mass mortality and ensure sustainable production.



**Picture 1:** Gill rot disease in *catla catla*

## Management and Recommendations

Preventive strategies include regular monitoring of water quality, reducing organic waste, and controlling stocking density. Treatment with 5ppm potassium permanganate ($KMnO_4$) bath for 5 to 5 minutes for 2-3 day (Abduhalilova et al.,2023;). improved aeration showed effective results in reducing infection spread. In some cases, antifungal drugs like formalin (used carefully and under expert supervision) can help.proper **Pond Management can prevent the chances of infection ,**Drain and dry ponds between production cycles to kill fungal spores. And along with that Regularly check and maintain proper levels of temperature, pH, ammonia, and oxygen.

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