

A CASE OF FURUNCULOSIS IN LABORATORY-REARED *LATES CALCARIFER*

S. C. MUKHERJEE, M. PEER MOHAMED and
S. V. ALAVANDI*

*Physiology, Nutrition and Pathology Division, *Fisheries
Environmental Management Division, Central Marine
Fisheries Research Institute, Cochin 682 031, India.*

OF the bacterial diseases of fishes, furunculosis has received the most attention. The pathogen responsible for this disease, *Aeromonas salmonicida*, commonly causes systemic disease in salmonids and in several freshwater forms. Sometimes the skin may also be affected in these species of fishes. As the disease is infectious, it is very important to take precautionary measures to prevent the infection from spreading. This paper deals with the skin form of furunculosis in *Lates calcarifer* and its recovery through a successful treatment.

Fifteen *L. calcarifer* measuring about 8–10 cm in length were reared in the laboratory in a 200 l capacity perspex tank. The fishes were maintained under optimum oxygen level and 30 ppt salinity. During the period of observation (25 days), one fish developed marked dullness and skin lesions, and was removed from the group and kept separately in another tank. Water in both the tanks was changed and the fishes observed closely for these symptoms in the rest of the group.

Clinical materials, namely swabs from lesions and exfoliated tissue, were inoculated on nutrient agar, Zobel's marine agar 2216 and TCBS agar plates and incubated at room temperature for 48 h. The isolates were identified according to the methods described earlier¹⁻³.

Treatment: (i) Affected skin was swabbed with a solution prepared by dissolving 10 mg of acriflavine in 100 ml of distilled water. A second application was made after 24 h.



Figure 1. Furunculosis in *Lates calcarifer*. Note the areas of erosion on the skin of the back, above the eye, and on lateral aspects.

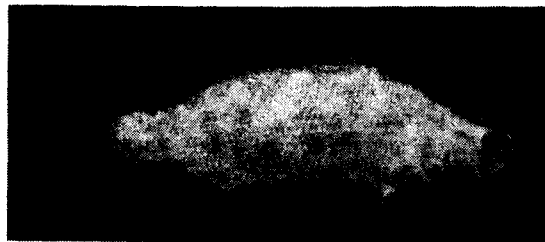


Figure 2. Furunculosis-affected *L. calcarifer* on twelfth day after treatment. Note the healthy skin in areas that showed abrasion.

(ii) Three mg of oxytetracycline was dissolved in 3 l of seawater (30 ppt) and the animal was given a bath for 24 h every two days in the medicated water from the 5th day onwards until recovery.

The fish showed greyish-yellow areas of erosion with haemorrhagic border on the skin of the back, proximal third of the lateral aspects of the body, and near the head. The animal became extremely sluggish in movement and markedly anorexic. On the second day the affected areas extended around the eyes and the muscle tissue showed blister-like necrotic areas and oedema (figure 1). There was continuous shedding of the cuticle and epidermis with widening of the abraded surface of the skin.

Bacterial smears from abraded lesions and exfoliated cells from the epidermis revealed gram-negative rods that were identified both morphologically and biochemically as *Aeromonas salmonicida* subsp. *salmonicida*. The bacteria were nonmotile and sensitive to oxytetracycline and streptomycin. *A. hydrophila* subsp. *proteolytica* was also isolated; the cells were motile and resistant to oxytetracycline but sensitive to streptomycin.

Twentyfour hours after the application of acriflavine there was excessive shedding of dead tissue from the skin surface. On the second day noticeable improvement was observed, with reduction in tissue shedding. The condition improved considerably from the sixth day onwards after treatment with oxytetracycline, given after antibiotic sensitivity tests. The abraded skin lesions started healing and were soon replaced by healthy tissue. By the twelfth day the animal had recovered completely and no skin lesions were seen (figure 2).

Furunculosis of fish usually erupts in a fishery or farm on introduction of a carrier fish. Roberts⁴ opined that the disease is usually associated with high temperature, low oxygen levels and overcrowding in the tank. In the present case the affected animal could have been a carrier, exhibiting the

disease resulting from stress associated with overcrowding and, possibly low oxygen level. Duijn⁵ opined that the infection first occurs in the gills and alimentary tract, and may be present latent for a long time. The disease breaks out when such fishes are weakened by adverse conditions. According to Sindermann⁶ furunculosis is a highly infectious disease in freshwater fish. However, the pathogen is sufficiently salt-tolerant.

Perusal of the available literature has not revealed reports of the occurrence of furunculosis in *L. calcarifer* in India. This is therefore the first report in India in laboratory-reared species. The isolation of *A. hydrophila* subsp. *proteolytica*, which is known to cause secondary infections like fin rot and haemorrhagic septicaemia, suggests that this organism might have acted in association with *A. salmonicida*, aggravating the lesion.

Nitrofurans, sulphonamides, oxytetracycline and chloramphenicols in the feed for 14 days and sulphamerazine, terramycin and nitrofurazone in varied doses in the diet for several days have been advocated

earlier for furunculosis⁴⁻⁶. Our trial with aqueous acriflavine solution and subsequently with oxytetracycline has proved effective in treating the disease.

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