OCCURRENCE OF FISH DISEASES IN TANKS AND PONDS OF KARNATAKA STATE

Irrigation tanks in Karnataka state, India with a total water spread area of 235,000 ha constitute a potential fishery resource. Fish culture in tanks and ponds in rural Karnataka has developed recently into a significant commercial enterprise. Intensification of aquaculture practice in these water bodies has led to the incidence of diseases and considered to be one of the major limiting factors for the expansion of aquaculture in the region. The observations made on parasites and diseases of fishes in Karnataka state are meagre and mostly with an academic interest (Srinivaschar and Sunderbai, 1974). Keeping these points in view, an investigation for diseases was carried out for two years during 1989-91 in Mandya, Mysore, Kolar, Chickmagalur, Bangalore and South Canara (SC) districts to build up a data base.

For this study, the samples were collected from fish landing centres, and from the riverine and reservoir catches also. The ectoparasites were dislodged carefully from the host fishes and washed in 2% sodium bicarbonate (NaHCO₃) solution before preserving them in 70% alcohol. The specimens were cleared in lactophenol and observed for various identifying characters under a dissection microscope. For myxosporidian pathogens, various parts of infected fishes were examined and the parasitic cysts were collected for observation. Impression smears on glass slides were made and stained with Lugol's iodine preparation for further studies. Dry smear of spores was stained with Giemsa stain after fixation in methanol and studied under oil immersion using a binocular microscope. For flagellates, the blood smear was taken by puncturing the branchial vessels of the host fishes and stained with Leishman and Giemsa stains for further studies.

The presence of anchor worm, Lernaea sp. was observed in farm ponds in culturable carps such as catla, Catla catla and rohu, Labeo rohita. The occurrence of Lernaea sp. was more in catla juveniles (59-100 mm size) during October to March and the mortality was over 70% in acute cases. This suggests that Lernaea sp. has got host specificity to catla juveniles. The common sites of infestation were at the base of fins and lateral muscle tissue and nostrils in few cases. The clinical symptoms included aemorrhages at the site of attachment and open wounds with blood spots. Lernaea sp. infestation resulted in weight loss of 15.5 g per month in juveniles of catla within 4 months rearing period. Seenappa et al. (1985) has reported occurrence of Lernaea adrasensis in L. rohita and L. fimbriatus in ponds of Dharwad district of Karnataka state. Reports are available on the incidence of Lernaea hesaraghattensis in guppies, Lebistes ticticulatus (Srinivaschar and Sunderbai, 1974) in C. catla and L. rohita. The parasite was
also reported in *Channa marulius*, *C. striatus* and *Notopterus notopterus* from Varada river of Dharwad district (Nandeesa et al., 1987).

Samples of fish collected from Vanivilas sagar (V. V. sagar) and Bhadra reservoirs have revealed that the infection by *Ergasilus malnadensis* is mostly in predatory fishes such as *C. punctatus*, *C. striatus*, *C. armatus*, *N. notopterus*, *Wallago attu* and *Ompok bimaculatus*. The occurrence of *Ergasilus* sp. was predominant in tanks and reservoir fishes. So far six species of *Ergasilus* have been reported in freshwater of India (Venkateshappa et al., 1988) and two of them viz., *Ergasilus malnadensis* and *E. bengalensis* have been reported in freshwater shark, *Wallago attu*. Heavy colonization of the parasite on the gills of *L. rohita* causing damage to gills was observed from the samples at V. V. sagar.

Argulus is considered to be the most widespread ectoparasite causing severe damage and economic loss to the aquaculturists of the state. Over 70% of the carp grow out ponds in the state were infested with argulus affecting different size groups of rohu weighing 100 g and above, around the year. Argulus has host specificity to rohu i.e., it has preference of attaching itself in rohu in composite culture ponds. A high mortality in catla and grass carp were reported in the farm ponds at V. V. sagar and in guppies at Bangalore rural district due to *Argulus siamensis* var. *siamensis* and *A. siamensis* var. *hessaraghattensis*, respectively (Sunderbai et al., 1988). Wood lice or isopod (Cymathoid sp.) were detected in *Ctenopharyngodon idella* and *Puntius sp.* in Katenhalli tank (area 210 ha) in Tumkur district. It was observed that the infestation was so high and the fishes were unable to swim in water. The isopod feed on blood of host fishes and when it gets matured, leads a free life. The parasites were found in gills and caused severe atrophy of gills.

The protozoan diseases, which were encountered during the study included *myxoboliasis*. The parasite causes mass mortality in Indian major carps, specifically in catla (size range 100- 350 mm) and were prevalent in fish farm ponds during October to February. Formation of cysts in gill filaments laden with spores causing necrosis of gill lamellae was observed. White to gray tumor masses were found on head, fin and caudal peduncle of catla and rohu infested with myxoboliasis.

*Trichodinosis* (ciliate parasites, *Trichodina* sp.) was found to be the most frequently occurring disease during nursery and rearing phase of carps. Infected specimens were noticed to turn sluggish, lose weight and the important symptoms included freyed fins, excessive mucous secretion and epidermal necrosis.

The flagellate parasites (*Trypanosoma* sp.) were collected from Maddur tank (Mandya district) and the blood smear taken from branchial blood vessels of infected
fishes indicated the presence of parasites. Except in the peripheral blood, no where the flagellate could be traced.

The outbreak of Epizootic Ulcerative Syndrome (EUS) in fishes inhabiting littoral areas of rivers, canals, tanks, ponds and reservoirs has seriously impeded fisheries activities in many places in the state. Investigations conducted in tanks and rivers (Bhadra, Tungabhadra, Murthawala, Darganahalli, Sita and Tarapathi) in Mandya, Mysore, Bangalore (rural) and South Canara districts have revealed that the catfishes, carps and minnows are found to be the most vulnerable to this disease. The susceptible species were *C. striatus*, *Clarias batrachus*, *M. armatus*, *Cyprinus carpio*, *Puntius dorsalis*, *P. sophore* and *Mystus vittatus*. Haemorrhagic ulceration was the only recognisable clinical symptom observed in the diseased fishes. The initial stage of infection showed localized haemorrhages on the scale pockets. The advanced stage exhibited sloughing off of scales with degeneration of epidermal tissue with deep and large ulcerations on various parts of the body. The affected water bodies were characterized by low alkalinity (10-40 mg/l) and hardness (8-40 mg/l), which were correlated to acidic and low calcium soils. Das (1988) has reported that environmental parameters like low calcium and acidic soils may not be the only major factor initiating the lesions but in all probability be predisposing factor for the outbreak of EUS. Chakrabarty (1994) has reported EUS in carps with advanced stages of infection.

The disease outbreak of fishes in the deccan region and particularly in the state of Karnataka has brought in new problems to fish farmers. The main bottleneck in controlling the diseases is the large size of tanks and ponds (more than 10 ha) in the state. More research in this line is required to control diseases of fishes in bigger water sheets in the coming days.

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