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## Pathological Studies on Encysted Metacercariae Infections among Some Freshwater Fish in Egyptian Aquaculture

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### Abstract

Fish may harbour many pathogens especially parasitic diseases which interfere with the aquaculture production and could constitute a zoonotic importance, especially in developing countries. In this study, 200 freshwater fishes (100 *Oreochromis niloticus* and 100 *Clarias gariepinus*) were collected from Abbassa fish farms, Egypt and examined for encysted metacercariae. The prevalence of infection among the two species was 70 and 83 %; respectively and was higher in winter (100 %), than in summer (92 %), spring (60 %) and autumn (28 %) for *O. niloticus* but was same along all seasons (82 %) for *C. gariepinus*. The infection was higher in males (71.4 % and 56.6 %) than females (28.6 % and 43.4 %) for both species; respectively. The common site of infection in *O. niloticus* were the gills (74.3 %) while in *C. gariepinus* was the muscles (97.5 %). There was a positive correlation between the weight as well as length of *O. niloticus* and the infection rate but no correlation was detected in *C. gariepinus*.

The recorded encysted metacercariae were identified either by direct microscopic examination (Heterophylids, Clinostomatids, Euclinostomatids, Prohemistomatids, Cyanodiplostomatids and Diplostomatids) or via experimental infection of chicken and resulted two trematodes (*Prohemistomum vivax*, *Mesostephanus applendiculatus*). The infected fish showed excessive mucus, loss of scale, some respiratory distress and black to orange spots or nodules on the affected organs. Microscopically, the parasitic cyst was seen embedded in the affected organ. Induced pressure atrophy and degenerative changes and maybe necrosis with or without tissue reactions (mononuclear cells, melanomacrophages and/or connective tissue capsule) depending on the period of infection and the nature of the metabolic products of the parasitic cysts. Based on the high incidence of encysted metacercariae in the investigated fish, we recommend further investigations to identify other trematodes especially those of zoonotic importance, enough inspection and/or cooking of fish to destroy metacercariae, control of snails and migratory birds with increasing fish resistance to the infection.

**Keywords:** Aquaculture, catfish, chicken, Egypt, fish, freshwater, metacercariae, pathology, Tilapia