3- FISH DISEASES AND PUBLIC HEALTH

BY

Dr., N., A., Mahmoud.

د/ نشأت عبدالمنعم محمود
رئيس بحوث متفرغ - معهد بحوث صحة الحيوان

Water pollution is a significant problems in the world especially in the developing countries including Egypt.

The course of hazardous is markedly increase in last decades after the propagation of industrial investigation & culture projects with increase world population.

Aquatic fauna the main resources for fish production are affected mainly with water pollution especially the chemical and biological effluents.

In the present review I clearify the role played by zoonotic fish diseases as indicators for water pollution .

Biological pollution not only introduces materials which are toxic and noxious for aquatic life but it often destroys the healthy food resources. Since organic pollutants tend to absorb oxygen they may reduce it to a fatal level especially in winter , sewage may also expose fauna to infect ious organism and lower resistance to infection, Fish pathogens are important as health hazards to man & animals which fish and aquatic fauna act as vehicle for certain zoonotic agents and as handicaps to fish production (Ronald, 1978). Fish are vulnerable to most types of infectious organisms which affect mammals, It is apparent that aquatic fauna are

much more exposed to all elements in their environment. Fish in ponds , lakes, rivers cannot avoid exposure to the the substances or chemicals suspended or dissolved in the waters being less than land animals to move to favourable regions or to avoid unfavourable elements . Fish are more sensitive indicators of their environments (Brown & Gratzek; I980).

Parasites of public health importance associated with fish due to biological pollution in Egypt are a problem today where it is the custom of the people to eat fish and fish products, either row or insufficiently cooked include larval trematodes were found in muscles, skin, gills, eyes and organs such as liver and spleen of certain species of fresh water fish with percentage up to I00 (Khalil I933; Martin & Kuntiz I955; Welland Randall I956; Ilan Paperna I980 and Shalabyetal I989).

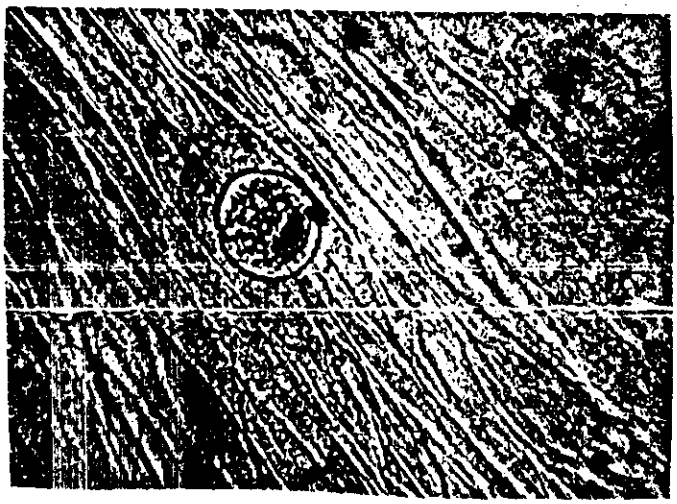
Human and animal settelement of position infestation to Heterophyiasis, Haplorchiasis, Prohemistomumiasis are the main cause of completed infected cycle while fish and gastropoda act as in intermediate host. The percentage of infection may reach up to 350cyst per gram in few species of fish host as Mugil spp., Tilapia spp., Clarias spp., Schilba spp. (Ilan Paperna I980) in water bodies of Qarun, El.Manzella, El.Burulus, lakes and River Nile. Moreover,

some species may reach a percentage of encystation around 20 cyst/ gram in lates niloticus , Aphanus fasociatus. Larval nematodes are recently isolated as Amplicaecum spp. from siunus venosus of Tilapia nilotica & T. galilae a nd in body cavities of some predatory fish in high Dam lake ((Mahmoud et al, I988, Ess et al, I989) are of great importance to the trade for human and animal health because of their effect on the quality of the product and repulsive effect on human health due to ES production (Deardorff, I986). Aquatic fauna especially fish & mollusces exposed today to chronic and so called physiological pollutan ts that do not cause heavy mortalities but survive and accumulate various amounts of microbial agents or chemical residue that have an unpleasant taste or are potentially dangerous. Although a comparatively scarce element, mercury enters the marine and fresh water environments naturally as well as via industrial processes such as Chlor-alkali or petro chemicals plants. It has been estimated that industrial activities have augmented the flow of mercury in the sea fourfold, increasingly stringent controls and changes in process technology have led to reduction in discharges in industrial countries but the problems in some developpi ng countries. remain unclear, Methyl mercury , the most ha zardous form of mercury, is produced by micro-organisms a nd because of its lipid solubility is accumulated by aquatic species.

It is an accumulative pollutant with a near I00% absorption rate and is retained in the organisms for lengthly periods. High levels of methyl mercury are found especially in some of the largest and oldest commercial fish species, particularly in the Mediterranean even though they may have been caught far from pollution sources. Possible health risks as the substances damage the CNS while the epidemiological studies on developping foetus or children are still required. Most investigators are convinced that fish in polluted environments may be passive carriers of virus, bacteria and fungi pathogenic to man. In particular, the bacterial flora of fish reflects the bacteriologic conditio n of the waters from which they originated, fish are considered to be indicators of the sanitary condition of waters. Fish can retain in digestive tract or skin many human pathogens(Escherichia coli, Salmonella, Shigella, Shigalla, Staph ylococcus clostridium botulinum) without contracting clinical disease (Ghittina, I972) . An alarming report by (Janssen, I970) affirms that fish serve as more important carriers of human infectious diseases as it is generally realised, fish may be active and passive carriers of a number of mammalian bacteria pathogens (genera Aeromonas, Psedomonas, Proteus, Escherichia, Vibrio, Salmonella, Shigella, Mycobacterium, Erysipedlothrix, Leptospira, Pasteurella) i introduced into the aquatic environment by human sewage. Pu blic health safety of fish is not related to strictor regulation of fish marketing in this case, careful insepection must be undertaken from areas where fish products are cultivated,

laboratory tests, sanitation plants and certifications are advisable to guarantee healthy products.

SEE FIG .I,2,3,4

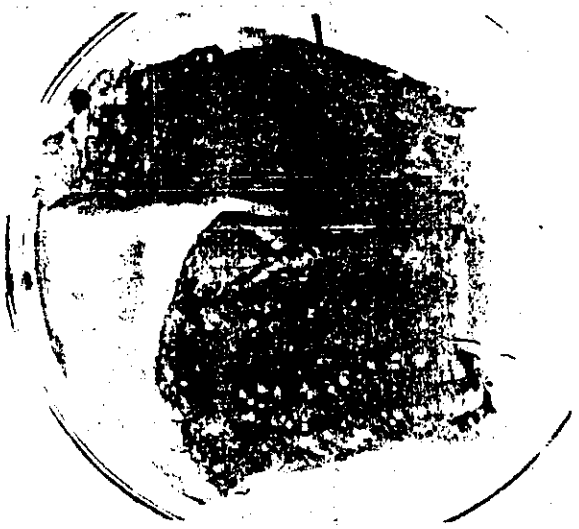


Encysted metacercaria in muscles of Mugil spp.

FIG-I Encysted metacercaria in muscle of Mugil Spp.

Adult Heterophyid (Heterophyes heterophyes)

FIG-2 Adult Hetrophid (Hetrophyes heterophyes)



Gross appearance of encysted metacercaria in muscles of clarias lazera

FIG-3 Gross appearance of encysted metacercaria in muscle of Claras lazera

Encysted metacercaria in muscles of Clarias lazera

FIG-4 Encysted metacercaria in muscle of clarias lzera

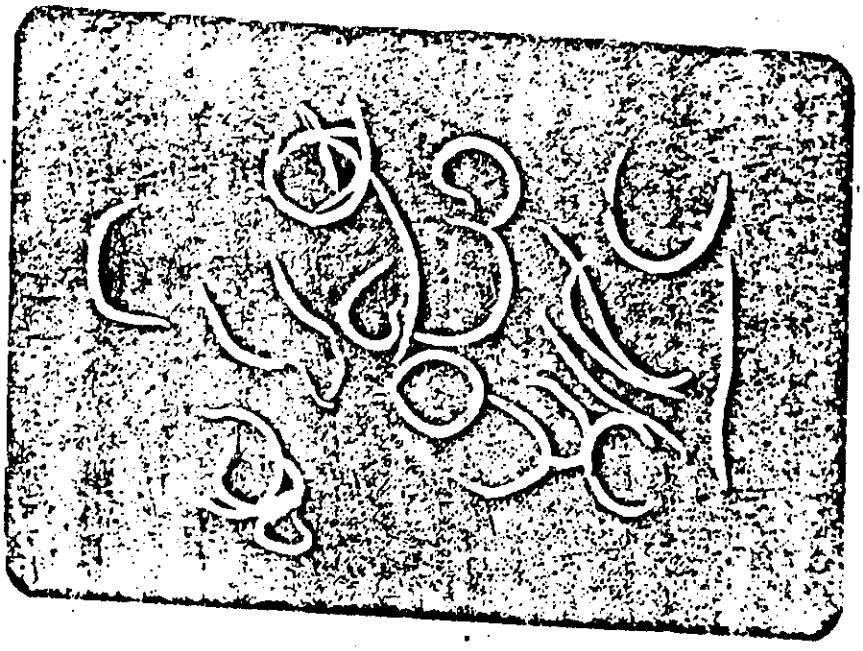


FIG-5 : Gross appearance of Amplicaecum (Baylis, 1920) type larvae.

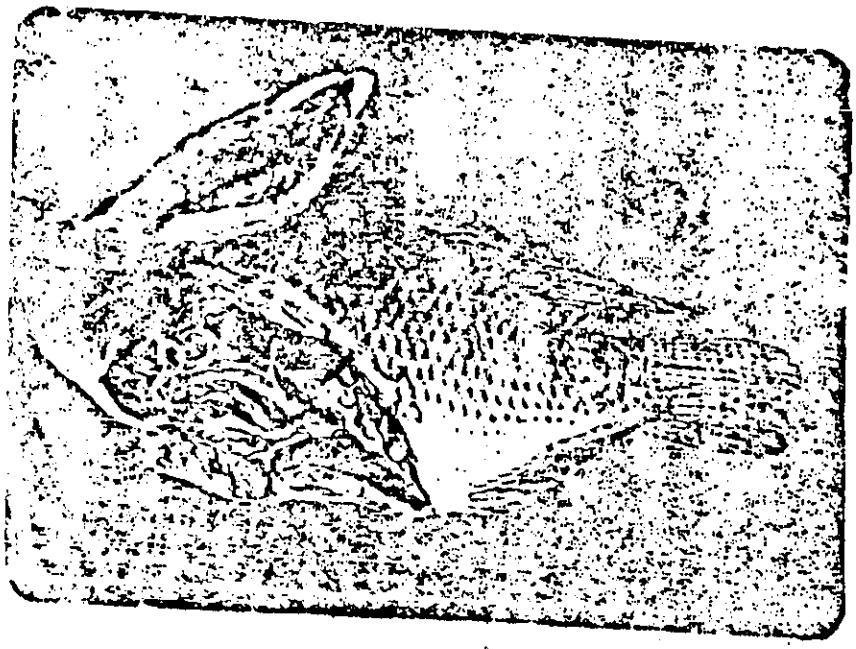


FIG-6 : Gross appearence of Amplicaecum (Baylis,1920) type larvae in localised region sinus venosus.