

Parasite fauna of fingerlings of *Channa* spp. used for treatment of asthma patients

The Ayurvedic fish medicine used for treatment of asthma patients has been receiving much attention from patients all over India, as well as Gulf countries. During the treatment, live fingerlings of *Channa* species carrying the herbal medicine are force-fed to individuals. The medicine is administered to patients on Mrigasira Karthika day every year mainly at Hyderabad but also at Visakhapatnam, Vijayanagaram, Guntur and other places in Andhra Pradesh. Wild fish collected from various natural habitats are used for the purpose.

Since live fish are consumed during the treatment, it was thought worthwhile to ascertain whether there was any possibility of man contracting helminth infections through fish. Existing information indicates that *Channa* spp. serve as hosts for a wide range of helminth parasites, some of which with zoonotic potential, are capable of being transferable to man^{1,2}.

One sample fingerling of five *Channa punctatus* and 31 *C. orientalis* was available to us from the lot of fish to be used for the fish medicine at Visakhapatnam during June 1995. The fishes ranging in length from 5.0 to 10.8 cm were brought to the laboratory and maintained in tanks and subsequently subjected to detailed parasitological study. All the organs including gills, scales, muscles and viscera were examined for the presence of parasites. The recovered parasites were identified, and the prevalence and mean intensity of infection with these parasites determined.

All the 36 fish examined were infected with helminth parasites. Since no difference was noted in the parasite fauna in both the species of fishes, the data were treated together. Altogether 13 species of helminth parasites were found including one species each of Monogenea, Digenea, Nematoda and Acanthocephala and nine species of metacercariae (Table 1). Metacercarial infections were most abundant. Gills carried heavy infections with metacercariae of *Centrocestus formosanus*. Metacercariae of *Atrophecaecum burminis* occurred frequently underneath the scales. Infections with tetracotyle larva and *Neascus channi* were also fairly common. Metacercariae of *Haplorchis*

pumilio, *Echinochasmus bagulai* and an unknown echinostome were less frequently encountered. Metacercariae of a plagiorchoid, probably of *Tremiorchis* sp., were fairly common in the muscles associated with gill arch.

Adult digeneans represented by *Genarchopsis goppo* infected 61.10% of the fish examined. The acanthocephalan *Pallisentis nagpurensis* was recovered from the intestine with a prevalence of 55.6% and mean intensity of 4.15. Nematode infections were, however, rare.

Results of this study have thus demonstrated that *Channa* spp. used for administration of fish medicine are infected with a wide range of parasites, some of them in high prevalence and intensity. The recovery of potentially zoonotic parasites such as *Haplorchis pumilio*, *Centrocestus formosanus* and

Echinochasmus bagulai is important since these parasites are known to cause in man considerable pathogenicity including abdominal discomfort, nausea, headache, vomiting, diarrhoea, dysentery and sometimes cardiac failure³⁻¹⁰.

Although not encountered during present study, *Channa* spp. also serve as intermediate hosts for a number of zoonotic parasites such as *Haplosporidium yokogawai*, *H. taichui*, *Clinostomum planatum* and *Gnathostoma spinigerum*. It is also very susceptible to epizootic ulcerative syndrome (EUS), a disease which causes massive fish mortalities.

Although no clinical information is available from patients who undergo fish treatment, the situation demands that necessary precautions have to be taken for preventing transmission of zoonotic infections to humans through the

Table 1. Parasites recovered from fingerlings of *Channa* spp., their prevalence and mean intensity

| Parasite | Location | Prevalence (%) | Mean intensity |
|--|----------------------|----------------|----------------|
| Monogenea | | | |
| <i>Gyrodactylus hyderabadensis</i> (Venkatanarasaiiah, 1979) | Skin | 13.80 | 3.60 |
| Digenea adult | | | |
| <i>Genarchopsis goppo</i> (Ozaki, 1925) | Stomach | 61.10 | 2.64 |
| Metacercariae | | | |
| <i>Tetracotyle</i> larva | Muscles | 44.44 | 9.00 |
| <i>Neascus channi</i> (Pandey, 1971) | Muscles | 38.89 | 4.00 |
| <i>Euclinostomum heterostomum</i> (Rudolphi, 1809) | Liver, muscles | 8.33 | 11.67 |
| <i>Echinochasmus bagulai</i> (Verma, 1935) | Gills | 13.89 | 3.40 |
| <i>Echinostome metacercaria</i> | Viscera | 8.33 | 1.30 |
| <i>Plagiorchoid metacercaria</i> | Muscles of gill arch | 13.88 | 3.40 |
| <i>Centrocestus formosanus</i> (Nishigori, 1924) | Gills | 47.20 | 8.29 |
| <i>Haplorchis pumilio</i> (Looss, 1896) | Caudal muscles | 36.10 | 2.00 |
| <i>Atrophecaecum burminis</i> (Bhalerao, 1926) | Scales | 41.67 | 17.90 |
| Nematoda | | | |
| <i>Neocamallanus</i> sp. | Intestine | 5.56 | 2.50 |
| Acanthocephala | | | |
| <i>Pallisentis nagpurensis</i> (Bhalerao, 1931) | Intestine | 55.56 | 4.15 |

medicine. While not recommending suspension of the use of live fish for administering the drug, we suggest the following precautionary measures to be implemented:

(i) The practice of using fish collected from natural habitats is to be discontinued since these natural foci invariably contain dense populations of snails that serve as intermediate hosts for the digeneans. Preferably fish reared in culture ponds or cement tanks where snails do not occur are to be used.

(ii) As a means of quality control, samples of fish from the lot to be used for fish medicine have to be subjected to parasitological study.

(iii) Strict hygienic conditions have to be maintained during the transport of fish and their maintenance.

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