

HELMINTHS OF FRESHWATER ANIMALS FROM FIVE PROVINCES IN NORTHERN THAILAND

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Abstract. Seven species of fishes, 6 species of mollusks, 1 species of crab, and 1 species of shrimp were collected from 12 natural freshwater sites from 5 provinces: Lumpang, Phrae, Phayao, Chiang Rai and Chiang Mai during the Rainy season of 2000. Fishes, *Channa striatus*, *Dermogenus pusillus*, *Oxyeleotris marmoratus*, *Trichogaster trichopterus* and *Trichopsis vittatus* were examined for helminths and 34.69 % (17/49) were infected. There were 2 genera of monogenea identified as follows: *Dactylogyus* and *Trianchoratus*; 3 genera of metacercariae were as follows: *Acanthostomum*, *Posthodiplostomum* and *Stellantchasmus*. Furthermore, 1 genus of Acanthocephala was found from fishes to be *Pallisentis* sp. The prevalence of infection in mollusks was 6.20% (17/274); Pleurolophocercous and Furcocercous cercariae were observed only in one species of mollusks, *Melanoides* sp. A crab and a shrimp were negative.

INTRODUCTION

Freshwater animals, eg fish, frogs and snails are intermediate hosts of some parasites. Consumption of undercooked or raw flesh of these intermediate hosts is the major mode of transmission of parasitic infections to humans. It is thus our interest to conduct a survey of some freshwater animals to find out the prevalence and distribution of helminths in these animals collected from some provinces in Thailand.

MATERIALS AND METHODS

The distribution and prevalence of helminths of freshwater animals from some provinces in Northern Thailand were investigated during the rainy season of 2000. They were collected from 12 natural freshwater sites along the road connected with 5 provinces in Northern Thailand: Lumpang, Phrae, Phayao, Chiang Rai and Chiang Mai. The animals, consisted of 7 species of fishes, 6 species of mollusks, 1 species of crab and 1 species of shrimp. These were examined in the Parasitology Research Laboratory, Department of Biology, Faculty of Science, Chiang Mai University.

The fins, gills, muscles, scales and visceral organs of the fishes were examined. Cercariae were collected from mollusks. Detail studies were done under stereo and compound microscopes. Some fresh metacercariae were observed for excretory bladder. Some encystic metacercariae, other helminths and excysted metacercariae were fixed in 4% formalin, stained with hematoxylin, dehydrated in alcohol series, and mounted with Permount.

RESULTS

Helminths of freshwater animals from 5 provinces in Northern Thailand were shown Table 1. Freshwater animals consisted of 7 species of fishes, 6 species of mollusks, 1 species of crab and 1 species of shrimp (Table 2). Forty-nine fishes of 7 species were collected. The prevalence of infection of fishes was 34.69%. The prevalence of infection in mollusks was 6.20%. A crab and a shrimp were negative.

These hosts from Lumpang were infected: *Oxyeleotris marmoratus*, *Trichogaster trichopterus* and *Trichopsis vittatus*. Five genera of helminths found were *Dactylogyus*, *Trianchoratus*, *Pallisentis*, *Acanthostomum* and *Posthodiplostomum*. Phrae had 2 infected hosts, *Trichogaster trichopterus* and *Melanoides* sp, 1 monogenea (*Trianchoratus* sp) and 2 types of cercariae were Pleurolophocercous and Furcocercous were found. Chiang Rai had 2 infected hosts *Channa striatus* and *Trichogaster trichopterus*, with 1 Acanthocephala, a *Pallisentis* sp. Chiang Mai also had 1 infected host, *Dermogenus pusillus*, a trematode, *Stellantchasmus* sp was found. No infection was found in fish from Phayao.

Two genera of monogenea were identified as *Dactylogyus* and *Trianchoratus*. The prevalence of each species of monogenea from of fishes was 25.00% and 20.00% respectively (Table 3). Three genera of metacercariae were recovered: *Acanthostomum*, *Posthodiplostomum* and *Stellantchasmus*. The prevalence of each species of metacercaria in the fishes was 25.00% and 5.00% respectively. The highest prevalence of parasites was *Stellantchasmus* found in 100% of *Dermogenus pusillus*. One genus of

Table 1
Total host infection from 5 provinces in Northern Thailand.

Site	Host	Helminths
1. Lumpang	<i>Oxyeleotris marmoratus</i>	<i>Dactylogyrus</i> sp
	<i>Rasbora argyrotaenia</i>	-
	<i>Trichogaster trichopterus</i>	<i>Trianchoratus</i> sp, <i>Pallisentis</i> sp
	<i>Trichopsis vittatus</i>	<i>Acanthostomum</i> sp, <i>Posthodiplostomum</i> sp
	<i>Bithynia</i> sp	-
	<i>Filopaludina</i> sp	-
	<i>Lymnaea</i> sp	-
	<i>Planorbis</i> sp	-
	<i>Pila</i> sp	-
	<i>Macrobrachium lanchesteri</i>	-
	<i>Somanniathelpusa</i> sp	-
2. Phrae	<i>Gambusia affinis</i>	-
	<i>Rasbora argyrotaenia</i>	-
	<i>Trichogaster trichopterus</i>	<i>Trianchoratus</i> sp
	<i>Filopaludina</i> sp	-
	<i>Lymnaea</i> sp	-
	<i>Melanoides</i> sp	Pleurolophocercous and Furcocercous cercariae
	<i>Planorbis</i> sp	-
	<i>Pila</i> sp	-
	<i>Macrobrachium lanchesteri</i>	-
<i>Somanniathelpusa</i> sp	-	
3. Phayao	<i>Trichopsis vittatus</i>	-
	<i>Filopaludina</i> sp	-
	<i>Pila</i> sp	-
	<i>Macrobrachium lanchesteri</i>	-
4. Chiang Rai	<i>Channa striatus</i>	<i>Pallisentis</i> sp
	<i>Rasbora argyrotaenia</i>	-
	<i>Trichogaster trichopterus</i>	<i>Pallisentis</i> sp
	<i>Trichopsis vittatus</i>	-
	<i>Filopaludina</i> sp	-
	<i>Lymnaea</i> sp	-
	<i>Pila</i> sp	-
	<i>Macrobrachium lanchesteri</i>	-
	<i>Somanniathelpusa</i> sp	-
5. Chiang Mai	<i>Dermogenus pusillus</i>	<i>Stellantchasmus</i> sp
	<i>Filopaludina</i> sp	-
	<i>Lymnaea</i> sp	-
	<i>Pila</i> sp	-

Acanthocephala found in fishes was *Pallisentis*, with a prevalence of 33.33%. Pleurolophocercous and Furcocercous cercariae were observed in mollusks, *Melanoides* sp. The prevalence of infection was 6.20%. The crab and shrimp were negative.

DISCUSSIONS

Stellantchasmus sp was found in 100% of the fish, *Dermogenus pusillus*, collected from Chiang Mai. Infection were found in fish from 4 provinces:

Table 2
The prevalence of helminths in hosts from 5 provinces in Northern Thailand.

Host	Number of hosts	Number of helminths	Prevalence (%)
Fishes			
<i>Trichogaster trichopterus</i>	8	4	50.00
<i>Trichopsis vittatus</i>	20	6	30.00
<i>Oxyeleotris marmoratus</i>	5	1	25.00
<i>Dermogenus pusillus</i>	4	4	100.00
<i>Rasbora argyrotaenia</i>	7	-	0
<i>Channa striatus</i>	4	2	50.00
<i>Gambusia affinis</i>	1	-	0
Total	49	17	34.69
Mollusks			
<i>Pila</i> sp	58	-	0
<i>Bithynia</i> sp	10	-	0
<i>Filopaludina</i> sp	129	-	0
<i>Planorbis</i> sp	32	-	0
<i>Lymnaea</i> sp	12	-	0
<i>Melanooides</i> sp	33	17	53.00
Total	274	17	6.20
Shrimp			
<i>Macrobrachium lanchesteri</i>	16	-	0
Crab			
<i>Somanniathelphusa</i> sp	9	-	0

Table 3
Sites of helminthic infection in freshwater animals investigated during the Rainy season of 2000.

Helminths	hosts	Site of infection	Prevalence (%)
1. Monogenea			
- <i>Dactylogyus</i> sp	<i>Oxyeleotris marmoratus</i>	Gills	25.00
- <i>Trianchoratus</i> sp	<i>Trichogaster trichopterus</i>	Gills	20.00
2. Trematode			
2.1 Metacercaria			
- <i>Acanthostomum</i> sp	<i>Trichopsis vittatus</i>	Scales	25.00
- <i>Posthodiplostomum</i> sp	<i>Trichopsis vittatus</i>	Scales	5.00
- <i>Stellanchasmus</i> sp	<i>Dermogenus pusillus</i>	Body cavity and muscle	100.00
2.2 Cercaria			
- Furcocercous cercaria	<i>Melanooides</i> sp	Visceral organs	
- Pleurplophocercous cercaria	<i>Melanooides</i> sp	Visceral organs	
3. Acanthocephala			
- <i>Pallisentis</i> sp	<i>Channa striatus</i> <i>Trichogaster trichopterus</i>	Intestine Intestine	33.33

Lumpang, Phrae, Chiang Rai and Chiang Mai, but fish from Phayao were negative.

Monogenea, Digenea and Acanthocephala were found. The monogenea were identified as *Dactylogyrus* sp and *Trianchoratus* sp. This study was similar to Tunthai (1982) that studied the type and quantity of parasite in striped snake-head fish (*Channa striatus*), American catfish (*Clarias gareipinus*) and Nile tilapia (*Tilapia nilotica*). He found 2 types of monogenea: *Dactylogyrus vastator* and *Dactylogyrus* spp. Rudchadamas (1982) investigated monogenea in freshwater fishes in some areas of Chaing Mai. Four species of monogenea were recovered; *Gyrodactylus* sp, *Heteronchocleidus* sp, *Tetraonchus* sp and *Trianchoratus* sp.

Acanthocephala found was *Pallisentis* sp. The worm was collected from intestine of fishes similar to the report of Tadros (1966). The proboscis is globular and armed with 4 rows of recurved hooks and the body is partially covered with spines.

Metacercariae of *Posthodiplostomum* sp were observed from scales, while Dhanumkumari (1988) found this species in the liver of fishes collected ten kms away from university campus. Colley and Olsen, (1963) found metacercariae from heart, kidney, liver and spleen of some fishes from the Lower Otay Reservoir, San Diego County, California, USA. *Acanthostomum* sp were recovered from the scales of fishes. This present study was similar to Wongsawad *et al* (1996a) which studied metacercariae from Chiang Mai and Lamphun Provinces. *Stellantchasmus* sp found in fishes in this study was similar to the report in fishes in Chiang Mai moat (Wongsawad *et al*, 1996b). Tantachamrum and Kliks (1978) found adult *S. falcatus* in human ileum. Klick and Tantachamrum (1974) reported adult of *S. falcatus*, *Haplochis yokogawai* and *H. taichui* from fishes, cats and human from Northern Thailand. *Stellantchasmus falcatus* was reported in human and mammals (Radomyos *et al*,1990).

Two types of cercaria; Pleurolophocercous and Furcocercous were observed in *Melanoides* sp while Wongsawad *et al* (1996b) reported Xiphidiocercaria and Furcocercous cercariae from mollusks in Chaing Mai moat.

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