

DIVERSITY OF HELMINTHS FOUND IN CHANNID FISHES FROM BUNG BORAPHET

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Abstract. Thirty-five channid fish, including *Channa lucius*, *Channa micropeltes*, and *Channa striata*, were collected from Bung Boraphet, Nakhon Sawan Province during April 2006 and investigated for helminthic infection. There were seven species of helminths : three species of cestodes (*Senga* sp, *Senga chiangmaiensis*, and larval stage in order Proteocephala), two species of trematodes (*Acanthostomum* sp and *Clinostomum* sp), a species of Acanthocephala (*Pallisentis nagpurensis*), and a species of nematode. The prevalence (%) of helminths in each species was 100, 20, 76, 20, 20, 100, and 20, respectively. The highest intensity of cestode larva in Order Proteocephala of *Channa striata* was 75.2%.

INTRODUCTION

Bung Boraphet is the largest freshwater swamp in Thailand. Its substantial size supports an abundance of diverse animals. Local residents benefit from the natural resources of this swamp, including remedies, clothing, building materials, and food (Kor-anantakul *et al*, 2000). Fish provides occupation and high protein food for people who live there. Channid fish are the favorites of people because of their delicious flesh and versatility for cooking. If these fish have been prepared with unhygienic cooking methods, there is the possibility of getting parasitic infection from the infected fish. Investigations of helminthic infection in these fish provide essential information for people to use for control and protection from parasites. Previously, there were only a few studies of parasitic infection of channid fish from provinces in the northern and central parts of Thailand (Sirikanchana, 1983, 1988; Wongsawad *et al*, 2004). To fulfill the essential need for knowledge, this study aimed to examine the diversity of helminths found in channid fish from Bung Boraphet, Nakhon Sawan Province.

MATERIALS AND METHODS

Nets and hooks were used to collect channid

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fish from Bung Boraphet, Nakhon Sawan Province during April 2006. Thirty-five individual channid fish included 5 *Channa lucius*, 5 *Channa micropeltes*, and 25 *Channa striata*. Each fish was photographed, and the essential data were collected, including total length, body weight, and other morphological characteristics for fish species identification. Each fish was dissected and examined in all parts (fins, gills, scales, and visceral organs) under a stereo microscope. The helminths were removed, counted, fixed in 4% formalin, stained with hematoxylin or borax carmine, dehydrated in alcohol series, and mounted with Permount. Species of worms were identified by morphological examination, as prescribed (Yamaguti, 1958, 1959, 1961, 1963; Schmidt, 1986; Sirikanchana, 1988; Wongsawad *et al*, 2004).

RESULTS

Thirty-five channid fish from Bung Boraphet were examined for helminthic infection. Species of helminths, prevalence (%), intensity of infection, and site of infection are shown in Table 1. There were seven species of helminths: three species of cestodes (*Senga* sp, *Senga chiangmaiensis*, and larval stage of Order Proteocephala), two species of trematodes (*Acanthostomum* sp and *Clinostomum* sp), a species of Acanthocephala *Pallisentis nagpurensis*, and a species of nematode. The prevalence rates of helminths in each species were 100, 20, 76, 20, 20, 100, and 20, respectively. *Senga* sp in *Channa micropeltes* (100%) and *Pallisentis nagpurensis* in *Channa*

Table 1
Species, prevalence, intensity, and site of helminths in channid fish from Bung Boraphet,
Nakorn Sawan Province.

Species of fish	Species of helminths	Prevalence (%)	Intensity of infection	Site of infection				
				Sc	St	In	Li	Sp
<i>Channa micropeltes</i>	Cestoda: <i>Senga</i> sp	100	63.8		+	+	+	
	Acanthocephala: <i>Pallisentis nagpurensis</i>	100	67				+	+
<i>Channa lucius</i>	Cestoda: <i>Senga chiangmaiensis</i>							
	Nematoda: Unknown	20	0.6				+	+
	Trematoda: <i>Acanthostomum</i> sp	20	0.2					+
	<i>Clinostomum</i> sp	20	0.2	+				
		20	0.2					+
<i>Channa striata</i>	Acanthocephala: <i>Pallisentis nagpurensis</i>	52	6.9		+	+	+	
	Cestoda: Order Proteocephala	76	75.2				+	+

Key: Sc = scale, St = stomach, In = intestine, Li = liver, Sp = spleen

lucius (100%) had the highest prevalence of helminths. The highest intensity of infection in each species of fish was 63.8 in *Senga* sp, from *Channa micropeltes*; 67 in *Pallisentis nagpurensis*, from *Channa lucius*; and 75.2 in larval stage of cestode, from Order Proteocephala of *Channa striata*. *Channa lucius* had the highest species diversity of helminths, including five species. The highest dispersion of helminths was three sites: recorded in *Senga* sp from stomach, intestine, and liver; *Pallisentis nagpurensis* from stomach, intestine, and liver; and cestode larva cystacanth from intestine, liver, and spleen. The specific dispersion of helminths was only one site, recorded in *Acanthostomum* sp from scale, *Clinostomum* sp from liver, and nematode from intestine.

DISCUSSION

From this survey, 7 species of helminths were recovered in channid fishes. We observed that the posterior part of scolex in *Senga* sp

(Fig 1) from *Channa micropeltes* is broader than *Senga malayana* (Sirikanchana, 1988), and their hook size is bigger than *Senga chiangmaiensis* (Wongsawad *et al*, 2004). From this study, *Senga chiangmaiensis* (Fig 1a,b) was found in *Channa lucius*. A previous report (Wongsawad *et al*, 2004) found this cestode in four species of fish: *Lepidocephalichthys burmanicus*, *Mystacoleucus marginatus*, *Mastacembelus armatus*, and *Monopterus albus*. This implied that *Senga chiangmaiensis* has low specificity of hosts. An immature cyst of cestode order Proteocephala was newly recorded in *Channa striata*. Sirikanchana (1983) found the immature cyst in a different order of cestode in the same species of fish. In this investigation, Acanthocephala *Pallisentis nagpurensis* from *Channa striata* and *Channa lucius* was the same species of parasite that was found in *Ophicephalus striatus* from Sing Buri (Sirikanchana, 1983) and Bangkok (Sirikanchana, 1988). *Acanthostomum* sp was recovered from *Channa lucius* in this study, whereas it was formerly found in *Channa gachua* in Mae Sa

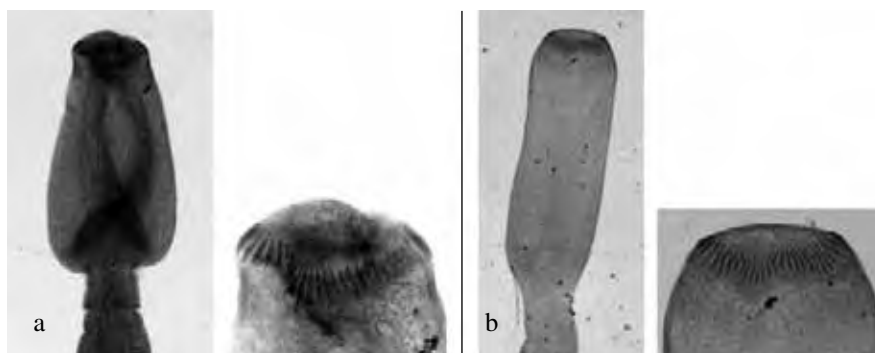


Fig 1- Scoleces and hooks of cestodes: a) *Senga* sp; b) *Senga Chiangmaiensis*.

(Wongsawad *et al*, 2004). The metacercaria of *Clinostomum* sp was found in *Trichogaster microlepis* from Bung Boraphet (Yooyen *et al*, 2005), while we found the adult stage of this species from another host, *Channa lucius*, in this study. We have concluded that *Channa lucius* received the metacercarial stage of *Clinostomum* from *Trichogaster microlepis* to explain the cycle of this parasite from intermediate host to definitive host.

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