

scoopw

## LIVER FLUKE-INFECTED CYPRINOID FISH IN NORTHEASTERN THAILAND (2016-2017)

Benjamabhorn Pumhirunroj<sup>1,2,3</sup>, Ratchadawan Aukkanimart<sup>4</sup>,  
Thidarut Boonmars<sup>1,2</sup>, Pranee Sriraj<sup>4</sup>, Parichart Boueroy<sup>5</sup>,  
Atchara Artchayasawat<sup>1,2</sup>, Jiraporn Songsri<sup>1,2,6</sup>, Panupan Sripan<sup>6</sup>,  
Kanpicha Chomphumee<sup>2</sup>, Panaratana Ratanasuwan<sup>7</sup>, Porntip Laummaunwai<sup>1</sup>,  
Sukhonthip Khueangchaingkhwang<sup>1,2</sup>, Apiporn Suwanatri<sup>1</sup>, Surasit Aunpromma<sup>8</sup>,  
Chatanun Eamudomkarn<sup>1</sup>, Narong Khuntikeo<sup>2,9</sup>, Watcharin Loilome<sup>2,10</sup>,  
Nisana Namwat<sup>2,10</sup> and Puangrat Yongvanit<sup>2</sup>

<sup>1</sup>Department of Parasitology, Faculty of Medicine, <sup>2</sup>Cholangiocarcinoma Research Institute, Cholangiocarcinoma Screening and Care Program, Khon Kaen University; <sup>3</sup>Program in Animal Science, Faculty of Agriculture Technology, Sakon Nakhon Rajabhat University; <sup>4</sup>Department of Traditional Medicine, Faculty of Natural Resources, Rajamangala University of Technology ISAN Sakon Nakhon Campus; <sup>5</sup>Faculty of Public Health, Kasetsart University Chalermphrakiat Sakon Nakhon Province Campus, Sakon Nakhon; <sup>6</sup>College of Allied Health Science, Suan Sunandha Rajabhat University, Samut Songkhram; <sup>7</sup>Department of Anesthesiology, Faculty of Medicine, Khon Kaen University; <sup>8</sup>Department of Veterinary Pathobiology, Faculty of Veterinary Medicine, <sup>9</sup>Department of Surgery, <sup>10</sup>Department of Biochemistry, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

**Abstract.** The highest prevalence of liver fluke infection globally is found in northeastern Thailand, a region where bodies of water have been contaminated with liver fluke eggs from feces of infected subjects. An evaluation of liver fluke metacercariae in cyprinoid fish from 132 different water bodies in 59 districts of 20 provinces in northeastern Thailand was conducted from November 2016 to October 2017. Twelve of 28 cyprinoid fish species obtained from 14 out of 20 provinces were infected with *Opisthorchis viverrini* metacercariae (mc). Infection in fish was highest (12.1%) in canal/creek, followed by marsh/pond (6.1%), reservoir (3.8%), lake (3.0%), swamp (1.5%), dam/weir (0.8%), and river (0.8%). Intensity of *O. viverrini*-infected fish ranged from 0.04-2.47 mc per fish and 0.59-177.78 mc per kg fish, being highest in Sri Sa Ket Province. Six new *O. viverrini* fish hosts (*Barbonymus altus*, *B. gonionotus*, *Cyclocheilichthys lagleri*, *Henicorhynchus ornatipinnis*, *Puntius brevis*, and *P. spilopterus*) were discovered. The results should be useful for development of appropriate strategies to control human feces contamination and liver fluke infection in water bodies and cyprinoid fish in northeastern Thailand.

**Keywords:** cyprinoid fish, liver fluke, trematode, northeastern Thailand, water body

---

Correspondence: Thidarut Boonmars, Department of Parasitology, Faculty of Medicine, Khon Kaen University, Khon Kaen 40002, Thailand.  
Tel: +66 4334 8387; Fax: +66 4320 2475; E-mail: bthida@kku.ac.th; boonmars@yahoo.com