

Short Communication

Description of New Host Record of Genus *Hysterothylacium* Ward and Magath, 1917 from Siluridae Catfish *Wallago attu* of Indus River Sindh, Pakistan

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Abstract. Current research on host catfishes *Wallago attu* collected from river Indus, Jamshoro, Sindh, Pakistan for examination of nematode parasites. Total of 27 specimens belong to genus *Hysterothylacium* was collected through the examination of nematode parasites, processes with slandered method of nematodes and identifies as *Hysterothylacium carangis* species was collected on the basis of diagnostic characteristics. Previously this species reported from intestine of fish *Carangoides malabaricus* of India but present species is new host record which is reported from catfish *Wallago attu* of river Indus, Jamshoro, Sindh, Pakistan.

Keywords: nematode, *Hysterothylacium*, Indus river, catfish

Hysterothylacium genus established by Ward and Magath (1917). The nematodes of genus *Hysterothylacium* comprises more than 50 species, which are parasites of worldwide fishes Deardorff and Overstreet (1980). Species of genus *Hysterothylacium* recorded from different hosts and countries world including. Kalyankar (1972a and b) collected from intestine of fish *Serranus ferio* of India, *H. winteri* Torres and Soto (2004) collected from intestine of fish *Eleginops maclovinus* of Chile, *H. synpapillus* by Bilqees *et al.* (1971) collected from intestine of fish *Muraenesox cinereus* of Pakistan, *H. shamimi* by Gupta and Begum (2007) collected from intestine of fish *Saurus indicus* of India, *H. vinodae* by Gupta and Begum (2007) collected from intestine of fish *Saurus indicus* of India, *H. eurycheilum* collected from stomach and intestine of fish *Epinephelus itajora* of Anguilla, *H. aetobatum* by Lakshmi (2005) and collected from intestine of fish *Aetobatus narinari* of India, *H. adumcum* collected by stomach and intestine of fish *Dissostichus eleginoides* of south Georgia, *H. carangis* by Kalyankar (1971) collected from intestine of fish *Carangoides malabaricus* of India.

But present species *Hysterothylacium carangis* is reported first time from catfish host *Wallago attu* of river Indus Jamshoro, Sindh, Pakistan, previously this

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species *Hysterothylacium carangis* reported by Kalyankar (1971) from intestine of fish *Carangoides malabaricus* of India. The reports on host catfishes belong to Siluriformes order from Pakistan are limited of those including, (Soofi *et al.*, 2017; 2016a; 2016b; 2016c; 2016d; 2016e and 2015; Ahmad *et al.*, 2014; Ayaz *et al.*, 2013; Khanum *et al.*, 2008; Kakar and Bilqees, 2008; Shakir and Khan, 2006) hence present research work on nematode parasites of catfish *Wallago attu* belong to order Siluriformes has new addition in field of science.

Materials and Methods

Host catfish *Wallago attu* of river Indus, Jamshoro, Sindh, Pakistan collected during present studies for examination of nematode parasites and brought to the Parasitology Laboratory, Department of Zoology University of Sindh, Jamshoro, Pakistan. A total of (27 ♀) specimens collected belong to genus *Hysterothylacium* processes with standard method of nematodes. Live specimens were killed in hot 70% ethanol, cleared in lacto-phenol and glycerol solutions and preserved in alcohol-glycerol solution. Temporary slide were made for drawing with the help of Camera Lucida. Photographs were taken with Camera Olympus DP12. Measurements are given in millimeter (mm).

Results and Discussion

Systematic position:

Genus *Hysterothylacium* by Ward and Magath (1917)

Hysterothylacium carangis by Kalyankar (1971)

Status: new host record

Number of specimen recovered: (27 ♀)

Number of host infected: 15

Host: *Wallago attu*

Site of infection: Intestine

Locality: river Indus at Jamshoro, Sindh, Pakistan

Description (Fig. 1-2). Body of worm elongate measures $39.17-40.19 \times 0.72-0.98$, covered with thick, striated cuticle, lateral sides of body with deep cuticle grooves, as body appear in the form of segments.

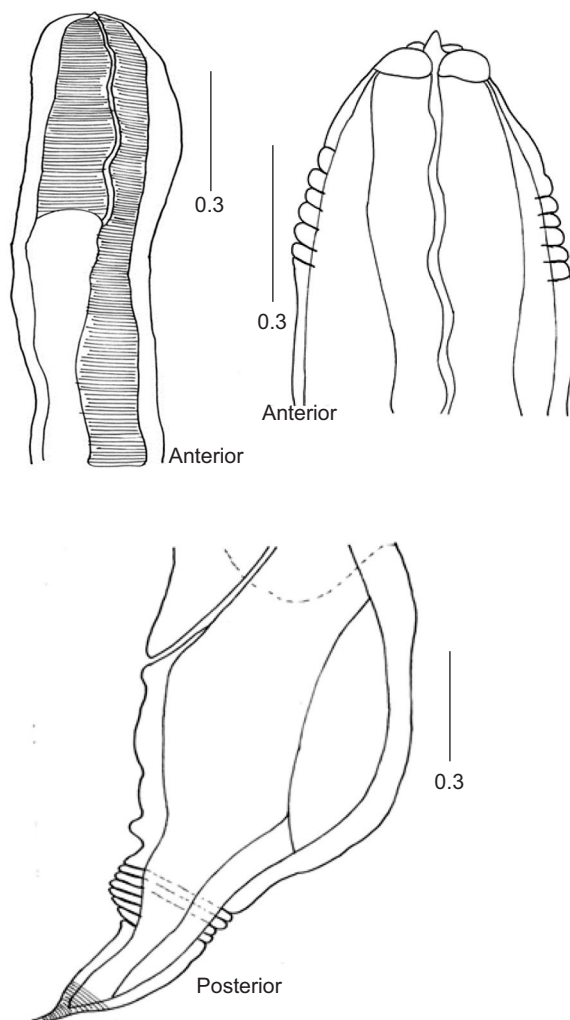


Fig. 1. *Hysterothylacium carangis* diagrams of anterior and posterior end of female worm.

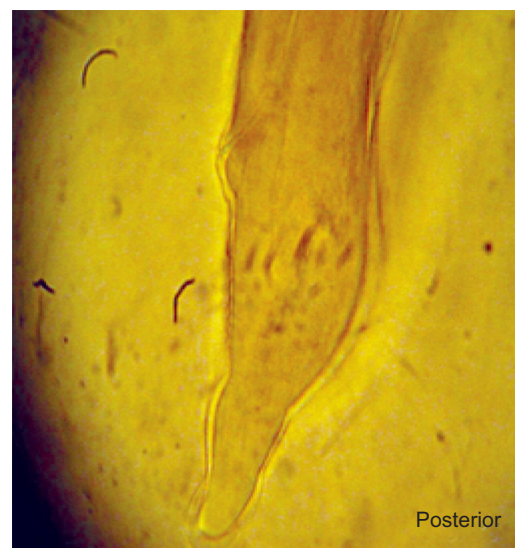
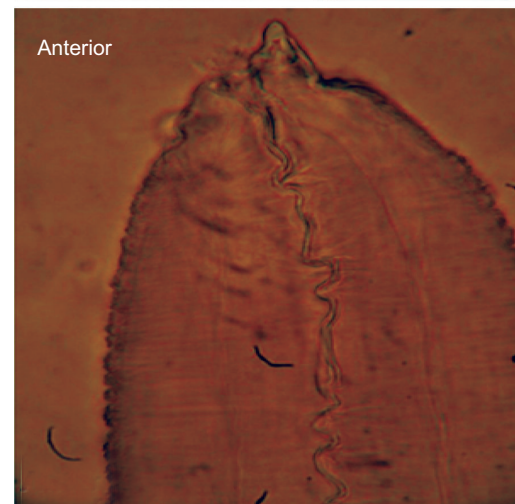


Fig. 2. *Hysterothylacium carangis* photographs of anterior and posterior end of female worm.

Anterior end of body broad, rounded and posterior end conical. Widest at level of genital opening. Mouth surrounded by 3 lips and one teeth, dorsal lip bear two papillae and each sub-ventral lip bear single papillae. Esophagus measures 4.27-4.31, with broad and short ventriculus measures 0.29-0.33, end with large ventriculus appendix measures 2.47-3.56. Excretory pore at anterior region of body. Tail little curved with caudal spine at the tip measures 0.41-0.46 mm in size. Anus near to tail region of body. Vulva pre-equatorial.

Genus *Hysterothylacium* by Ward and Magath (1917) comprises more than 50 species, which are parasites of worldwide fishes Deardoff and Overstreet in (1980). Present species compare with previously reported species in detail.

H. incurvum reported by Deardoff and Overstreet (1980) and collected from stomach of fishes *Xiphias gladius* and *Istiophorus gladius* of Srilanka and India differs from present species in having larger in length *i.e.* head with lips having margins and hinder portion bear cuticle flanges and cervical alae and cervical papillae present and nerve ring encircle anterior end of esophagus and tail straight pointed.

H. winteri reported by Torres and Soto (2004) and also collected from stomach and gills of fish *Catorhinus maximus* and *Raja radiata* of Srilanka differs from present species in having smaller in length *i.e.* lips short, each with rounded projection and two teeth at apex, cervical papillae present and tail with appendages. *H. synpapillus* by Bilqees *et al.* (1971) collected from intestine of fish *Muraenesox cinereus* of Pakistan and differs from present species in having larger, lips with dentigerous linings at its junction with esophagus and tail pointed.

H. winteri by Torres and Soto (2004) and collected from intestine of fish *Eleginops maclovinus* of Chile differs from present species in having each subventral lips with a pair, one single papillae and one amphid and lips with cuticle flanges on lateral margins and interlabia, tail conical and tip covered with spines and a pair of phasmid.

H. shamimi by Gupta and Begum (2007) and collected from intestine of fish *Saurus indicus* of India differs from present species in having smaller in length *i.e.* each subventral lip anteriorly turn into two semilunar structures and interlabia and lip pulp present and each lip with a pair of papillae and vulva postequatorial.

H. vinodae by Gupta and Begum (2007) and collected from intestine of fish *Saurus indicus* of India differs from present species in having smaller in length *i.e.* each subventral lip anteriorly turn into two semilunar structures and interlabia and lip pulp present and each lip with a pair of papillae and vulva postequatorial.

H. aetobatium by Lakshmi (2005) collected from intestine of fish *Aetobatus narinari* of India differs from present species in having smaller in length, smooth cuticle and esophagus divide into two parts and vulva equatorial.

H. adumcum by Navone *et al.* (1998) collected from stomach and intestine of fish *Dissosticlus eginoides* of South Goergia differs from present species in having cervical alae present; tail conical with small projections and covered with spines.

But present worms have close resemblance with *Hysterothylacium carangis* Kalyankar (1971) collected from intestine of fish *Carangoides malabaricus* in all morphometric characteristics and identified as such. Previously species of the genus *Hysterothylacium* Ward and Magath in (1917) have been reported from host fishes including, *Carangoides malabaricus*, *Xiphias gladius*, *Istiophorus gladiu*, *Catorhinus maximus*, *Serranus ferio*, *Muraenesox cinereus*, *Eleginops maclovinus*, *Saurus indicus*, *Epinephelus itajora*, *Aetobatus narinari* and *Dissosticlus eginoides*. However, presently this genus is being reported for the first time from the new host *Wallago attu* of Indus river Jamshoro, Sindh, Pakistan.

Conflict of Interest. The authors declare no conflict of interest.

References

- Ahmad, N., Ayaz, S., Shams, S., Karimullah. 2014. Prevalence and morphology of Helminth parasites of fish from river Swat, Khyber Pakhtunkhwa. *Pakistan Journal of Agricultural Research*, **2**: 142-148.
- Ayaz, S., Khan, M.A., Rehman, I.U., Anwar, M., Saeed, S., Zarin, S. 2013. Prevalence of endoparasites in fresh water fishes in river Punjkorha, Khyber Pukhtunkhwa, Pakistan. *International Journal of Biology Pharmacy and Allied Sciences*, **2**: 111-115.
- Bilqees, F.M., Khanum, Z., Jehan, Q. 1971. Marine fish nematodes of west Pakistan-I. description of seven

- new species of Karachi coast. *Journal of Science Karachi*, **1**: 175-184.
- Deardroff, T.L., Overstreet, R.M. 1980. Review of *Hysterothylacium* and *Iheringascaris* (both previously=*Thynnascaris*) (Nematoda: Anisakidae) from the northern Gulf of Mexico. *Proceeding of Bioscience and Zoological Society Washington*, **4**: 1035-1079.
- Gupta, P.C., Begum, I. 2007. Two new anisakid nematode from marine fish, *Saurus indicus* (day) at India. *Bioscience Research*, **4**: 06-14.
- Kalyankar, S.D. 1972a. On some interesting nematodes of fishes from India. *Rivista de Parassitologia*, **4**: 281-288.
- Kalyankar, S.D. 1972b. A report on *Tkynnascaris inquires* (Linton, 1901) Rasheed, 1965 from India (Ascarididae: Stomachidae). *Marathwada University Journal*, **4**: 95-98.
- Kalyankar, S.D. 1971. *Thynnascaris carangis* sp. n., a new nematode (Nematoda, Stomachidae, Raphidascaridinae) from an Indian fish *Oarax malabaricus* day. *Acta Parasitologia*, **19**: 147-150.
- Kakar, A., Bilqees, F.M. 2008. *Rhabdochona magnavesicula* new species (Nematoda: Rhabdochonidae) from the fish *Schizocyprus brucei* Regan, 1914 of River Loni, Musakhel, Balochistan, Pakistan. *Proceedings of Parasitology*, **46**: 49-65.
- Khanum, H., Ferdows, J., Farhana, R. 2008. Community of Helminth Parasites in *Rita rita* (Hamilton Buchanan). *Journal of Bio-Science*, **16**: 133-135.
- Lakshmi, I.R. 2005. A new nematode *Hysterothylacium aetobatum* from ray fish, *Aetobatus narinari* (Euphrasen). *Parasitologia Americana*, **60**: 170-173.
- Shakir, H.A., Khan, A.M. 2006. The prevalence of Cestode infection in a freshwater catfish, *Sperata Sarwari*, Department of Zoology Punjab University, Lahore, Pakistan. *Punjab University Journal Zoology*, **21**: 41-47.
- Soofi, H., Birmani, N.A., Dharejo, A.M. 2017. The first record of genus *Pseudophyllodistomum* Cribb, 1987 from Siluriform catfish *Mystus cavasius* (Hamilton, 1822) of River Indus Sindh, Pakistan. *Journal of Entomology and Zoology Studies*, **5**: 209-211.
- Soofi, H., Birmani, N.A., Dharejo, A.M. 2016a. *Dendrorchis ritata* n.sp. (Trematoda: Gorgoderidae) from catfish *Rita rita* (Siluriformes: Bagridae) of Jamshoro district, Sindh, Pakistan. *International Journal of Fauna and Biological Studies*, **3**: 17-19.
- Soofi, H., Birmani, N.A., Dharejo, A.M. 2016b. The first record of (Nematoda: Camallanidae) genus *Onchocamallanus* Petter, 1979 from Sindh province of Pakistan. *Journal of Entomology and Zoology Studies*, **4**: 851-853.
- Soofi, H., Birmani, N.A., Bhutto, A. 2016c. New species of genus *Sphincterostoma* Yamaguti, 1937 reported from Bagridae (Bleeker, 1858) catfish *Rita rita* (Siluriformes: Bagridae) of river Indus at district Jamshoro, Sindh, Pakistan. *International Journal of Advanced Research*, **4**: 1358-1362.
- Soofi, H., Birmani, N.A., Dharejo, A.M. 2016d. *Thaparotrema Shamimi* new species in catfish *Rita rita* (Hamilton, 1822) from Jamshoro district Sindh, Pakistan. *International Journal of Advanced Research in Biological Sciences*, **3**: 124-129.
- Soofi, H., Birmani, N.A., Dharejo, A.M., Bhutto, A. 2016e. Description of new species *Witenbergia mystusi* of genus *Witenbergia* Vaz, 1932 from River Indus catfish *Mystus cavasius* (Hamilton, 1822) Sindh, Pakistan. *International Journal of Innovative and Applied Research*, **4**: 21-25.
- Soofi, H., Birmani, N.A., Dharejo, A.M., Abbasi, A.R. 2015. First record of genus *Thaparotrema* Gupta, 1955 (Trematoda: Ophisthorchiidae) in Pakistan. *Journal of Entomology and Zoology Studies*, **3**: 232-234.
- Torres, P., Soto, M.S. 2004. *Hysterothylacium winteri* sp. n. (Nematoda: Anisakidae), a parasite of Chilean rock cod, *Eleginops maclovinus* (Perciformes: Eleginopidae), from south Chile. *Folia Parasitologica*, **51**: 55-60.
- Ward, H.B., Magth, T.B. 1917. Notes on some nematodes from freshwater fishes. *Journal of Parasitology*, **3**: 57-64.