

Cestode Fauna of Food Fishes in River Ganges around
an Indian Sub-humid Region.

IV. *Polyonchobothrium allahabadense* n. sp. from *Mystus vittatus* at Allahabad

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Abstract

This investigation is the first report on the genus *Polyonchobothrium* from the tropical waters of River Ganges at Allahabad, India. *P. allahabadense* n. sp. reported from *Mystus vittatus* measures less than 200 mm, and possesses the scolex armed with 56–64 rostellar hooks in 4 groups. The new species has been compared with closely allied species of the genus.

Key words: *Polyonchobothrium allahabadense*, *Mystus vittatus*, Pseudophyllidea, Cestoidea.

Introduction

The genus *Polyonchobothrium* was established by Diesing (1854) for the Ptychobothriid tapeworms with a scolex armed with four groups of rostellar hooks. The detailed examination of the specimens collected from *Mystus vittatus* Ham. (Family-Sisoridae, Order-Siluriformes, Super order-Ostariophysi, Division-Euteleostei) revealed these to belong to new species of the genus *Polyonchobothrium* under family Ptychobothriidae Lühe (1902), order Pseudophyllidea Carus (1863), class Pseudophyllida Ubelaker (1983) of phylum Cestoidea Ubelaker (1983).

Materials and Methods

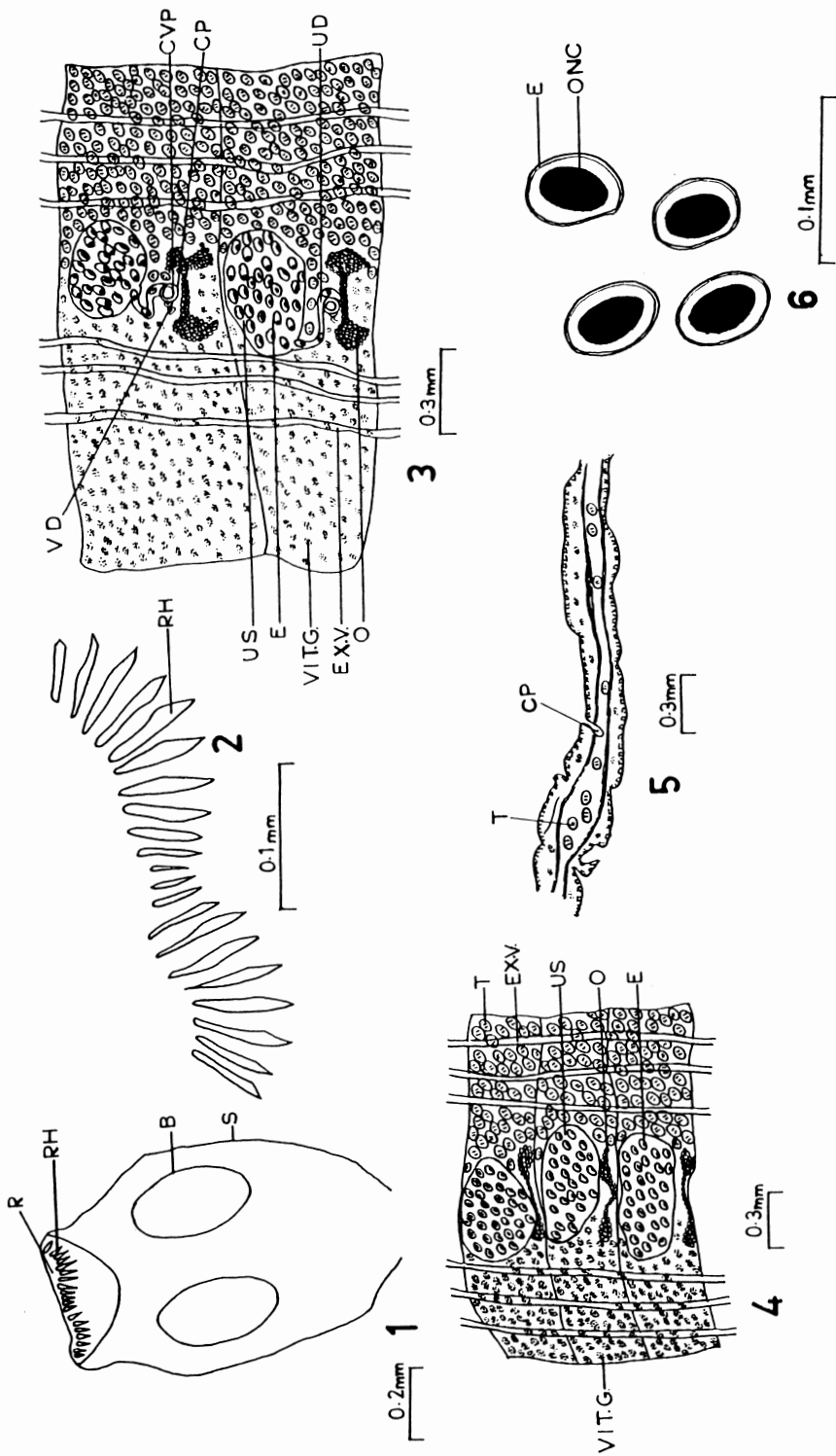
Three out of a total of 250 *Mystus vittatus* collected from River Ganges at Allahabad yielded 10 tapeworms. Permanent mount of specimens were prepared by the usual method (Malhotra, 1983). Paraffin blocks were prepared and serial sections were cut at 0.005 mm. Camera lucida drawings were prepared. All measurements are in mm. unless otherwise

stated and given as range followed by mean \pm S.E.

Polyonchobothrium allahabadense n. sp.
(Figs. 1–6)

Description (based on 10 specimens): Worms 110–126 (117.75 ± 2.966) in length and 2.16 in maximum width. Scolex (Fig. 1) $0.864-1.968$ (1.42 ± 0.262) \times $0.448-0.992$ (0.674 ± 0.10). Bothria 2, $0.144-0.2$ (0.172 ± 0.02) \times $0.32-0.368$ (0.347 ± 0.012). Rostellum armed, $0.112-0.18$ (0.146 ± 0.024) \times $0.35-0.416$ (0.383 ± 0.023). Rostellar hooks (Fig. 2) $56-64$ (58.67 ± 2.18) in 4 groups, each bearing $14-16$ (15 ± 0.471) hooks. Rostellar hooks $0.029-0.08$ (0.055 ± 0.005) in length. Neck absent. Proglottids craspedote, broader than long. Immature, mature (Fig. 3) and gravid proglottids (Fig. 4), $0.136-1.20$ (0.526 ± 0.216) \times $0.232-1.68$ (0.859 ± 0.306); $0.1-1.04$ (0.487 ± 0.191) \times $1.104-1.936$ (1.52 ± 0.17); and $0.16-1.024$ (0.438 ± 0.143) \times $1.056-2.16$ (1.748 ± 0.208), respectively. Testes, $90-175$ (134.667 ± 8.994) in number distributed in single continuous layer. Testes oval to spherical, $0.014-0.08$ (0.04 ± 0.012) \times $0.015-0.096$ (0.05 ± 0.01). Cirrovaginal pore median, $0.032-0.072$ (0.052 ± 0.007) in depth and $0.034-0.08$ (0.055 ± 0.006) in width.

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Figs. 1-6 *Polyonchobothrium allahabadense* n. sp. 1. Scolex (x240), 2. Rostellar hooks (x475), 3. Mature proglottids (x280), 4. Gravid proglottid (x190), 5. Transverse section of a proglottid showing disposition of cirrus pouch (x190), 6. Eggs with oncosphere (x540).

Abbreviations:

B, bothria; CP, cirrus pouch; CVP, cirrovaginal pore; E, egg; EX. V., excretory vessel; O, ovary; O.N.C., oncosphere; R, rostellum; RH, rostellar hooks; S, sucker; T, testis; U.D., uterine duct; U.S., uterine sac; V.D., vas deferens; VIT. G., vitelline gland.

Cirrus pouch (Fig. 5) elongated, 0.04–0.12 (0.078 ± 0.01) \times 0.035–0.104 (0.063 ± 0.007). Cirrus pouch lies close to ovary. Vas deferens, 0.008–0.016 (0.012 ± 0.003) in diameter. Internal seminal vesicle, 0.014–0.037 (0.028 ± 0.004) \times 0.016–0.04 (0.029 ± 0.004). Ovary bilobed, transversely elongated, 0.034–0.2 (0.105 ± 0.017) \times 0.16–0.624 (0.343 ± 0.043). Vagina, 0.008–0.016 (0.012 ± 0.003) in diameter. Vitellaria follicular, cortical in single continuous layer in transverse sections, 0.014–0.032 (0.025 ± 0.004) \times 0.019–0.064 (0.045 ± 0.008). Receptaculum seminis, 0.048–0.064 (0.056 ± 0.006) \times 0.048–0.096 (0.075 ± 0.012). Uterus with a coiled uterine duct ending into a uterine sac which occupies greater part of proglottid in gravid proglottids. Uterine sac, 0.12–0.56 (0.309 ± 0.017) \times 0.192–0.752 (0.536 ± 0.077). Uterine duct, 0.01–0.088 (0.041 ± 0.01) in diameter. Uterine pore, 0.048–0.08 (0.064 ± 0.011) in depth and 0.048–0.104 (0.076 ± 0.02) in width. Eggs (Fig. 6) round to oval, operculate, 0.015–0.044 (0.032 ± 0.005) \times 0.018–0.059 (0.047 ± 0.005). Oncosphere spherical to oval, 0.012–0.026 (0.019 ± 0.003) \times 0.018–0.043 (0.035 ± 0.004).

Discussion

P. allahabadense n. sp. differs from *P. ciliotheca* (Wedl, 1861) Dollfus, 1935, in having longer than broad scolex and greater number of rostellar hooks; from *P. clarias* Woodland, 1925, in having wider scolex, greater number of larger rostellar hooks and testes; from *P. gordonii* Woodland, 1937, in possessing larger worms, larger scolex, greater number of larger rostellar hooks and testes, wider immature and gravid proglottids and operculate eggs; from *P. polypteri* (Leydig, 1853), in consisting of greater number of larger rostellar hooks and testes; from *P. pseudopolypteri* Meggitt, 1930, in possessing greater number of smaller rostellar hooks and testes; and from *P. indicum* Nama, 1979, in possessing larger scolex, greater number of larger rostellar hooks and testes,

wider bothria, broader than long immature proglottids, larger mature and gravid proglottids, wider ovary, wider vitellaria and larger operculate eggs. Hence the authors feel justified to accommodate the new form as a new species *P. allahabadense* n. sp. named after the locality of the host.

Host : *Mystus vittatus* Ham. (Family-Sisoridae, Order-Siluriformes, Super order-Ostariophysi, Division-Euteleostei)

Habitat : Small intestine

Locality : River Ganges, Allahabad, India.

Holotype : Holotype slide no. PCLS 108/86 and paratype slide no. PCLS 109/86 deposited with the Parasitological Collections, Department of Zoology, University of Allahabad, Allahabad, India.

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References

- 1) Carus, J. V. (1863): Prodrömus Faunae Mediterraneae (etc.) Part 1. Cestodes, 112–282, Stuttgart.
- 2) Diesing, K. M. (1854): Ueber eine naturgemässe Verteilung der Cephalocotyledon. Sitz.-ber. Akad. Wiss. Wien, Math. Naturw. Klasse. Abt. I. 13, 555–616.
- 3) Dollfus, R. P. H. (1935): Sur un cestode pseudophyllide parasite de poisson d'ornement. Bull. Soc. Zool. France, 59, 476–490.
- 4) Leydig, F. (1853): Ein neuer Bandwurm aus *Polypterus bichi*. Arch. Naturg., 19, 219–222.
- 5) Lühe, M. (1902): Ueber die Fixierung der Helminthen an der Darmwandung ihrer Wirte und dadurch verursachten pathologisch-anatomischen Veränderungen des Wirtsdarmes. Verhandl. Intern. Zool. Cong. Berlin, 1901, 698–706.
- 6) Malhotra, S. K. (1983): Cestode fauna of hill-stream fishes in Garhwal Himalayas, India. IV. *Ptychobothrium nayarensis* n. sp. from *Barilius bola* (Ham.) and *Schizothorax richardsonii* (Gray). Korean J. Parasit., 21(2), 205–208.
- 7) Meggitt, F. J. (1930): Report on a collection of cestodes mainly from Egypt. IV. Conclusion. Parasitology, 22, 338–345.

- 8) Nama, H. S. (1979): On a new cestode *Polyonchobothrium indicum* n. sp. from the fish *Channa (Ophiocephalus) punctatus* in Rajasthan. Bioresearch, 3, 5–6.
- 9) Ubelaker, J. E. (1983): The morphology, development and evolution of tapeworm larvae. In: Arme, C. and Pappas, P. W. (Eds.) Biology of the Eucestoda. I. Academic Press, 235–296.
- 10) Wedl, F. (1861): Zur Helminthenfauna Aegyptens (2. Abt.). Sitz.-ber. Akad. Wiss. Wien Math.-Naturwiss. Klasse, Abt. I, 44, 463–482.
- 11) Woodland, W. N. F. (1925): On three new proteocephalids (Cestoda) and a revision of the genera of the family. Parasitology, 17, 370–394.
- 12) Woodland, W. N. F. (1937): Some cestodes from Sierra Leone. II. A new caryophyllaeid, *Marsypocephalus*, and *Polygonchobothrium*. Proc. Zool. Soc. London, 1937, 189–197.