

TAXONOMIC STUDIES OF TREMATODE *PSILOCHASMUS OXYURUS* (CREPLIN, 1825) OF *GALLUS DOMESTICUS*

Madhav Marotrao Kalyankar, Pujawati Sanjaykumar Manoorkar, Sanjay Shamrao Nanware and Dhanraj Balbhim Bhure*

Post Graduate Department of Zoology, Yeshwant Mahavidyalaya, Nanded-431602. M.S., India

*Author for Correspondence: drajbhure82@gmail.com

ABSTRACT

The present specimens differ from other known species in certain morphological characters. However, they show a general resemblance to *P. oxyurus* in overall size and in the disposition of various internal organs. It is evident that the testes, ovary, cirrus sac and ventral sucker in the present specimens are markedly larger and slight variations in the size of organs than those earlier described in *P. oxyurus* (Creplin, 1825) Luhe (1909). In the present instance, however, the differences are so minor that it seems justifiable to consider them as redescribed species of *P. oxyurus* Creplin, 1825) Luhe (1909).

Keywords: *Gallus domesticus*, Nanded, *Psilochasmus oxyurus* (Creplin, 1825) Luhe (1909), Trematode

INTRODUCTION

The present communication deals with the description of *P. oxyurus* Luhe (1909) erected the genus *Psilochasmus* to include the species *Psilochasmus oxyurus* (Creplin, 1825). Since then, the same species was described from various parts of the world, in different species of ducks, *Aythya marila*, *A. fuligula*, *Bucephala clangula*, *Clangula hyemalis*, *Oidemia nigra* and *Tadorna tadorna*.

In India this species was described by Baugh (1949) from duck, *Anas poecilorhyncha* and Singh (1954) from the pintail duck, *Anas acuta*. Skrzabin (1913) described another species *Psilochasmus longicirratu*s from the white eyed pochard, *Fuligula nyroca*. Inamdar and Bhalerao (1944) recorded the same from the wild duck, *Aythya ferina ferina*. But this species was later found to be synonym with *P. oxyurus* (Stunkard and Dunihue, 1931 Singh, loc. cit). Travassos, in 1926, reported another species *P. agilis* from the duck, *Poecilonetta bahamensis*. Inamdar and Bhalerao (loc. cit) doubts the validity of this species even though it is still retained as species by Yamaguti (1958) and Loos-Frank (personal communication). Later on, Loos-Frank (1968) described new species *P. aglyptorchis*, obtained from Herring Gull, *Larus argentatus*, experimentally infected with Psilostomatid metacercariae *Psilochasmus oxyurus gallinae*.

MATERIALS AND METHODS

One hundred Six mature specimens of this form were collected from the Eighty Three intestine and stomach of *Gallus domesticus* out of Two Hundred Forty Examined from Kandhar, Mukhed, Degloor, Nanded M.S. India during February, 2018 to January, 2020. The trematodes found were fixed and processed according to Giese et al. (2015). Five trematodes were used for morphologic and morphometric analysis. The measures were obtained in millimeters and are presented in the form of average and amplitude between parentheses. Drawing (illustration) were done by using microscope attached with camera lucida.

RESULTS

Body lanceolate, blunt anteriorly and tapering posteriorly to conical tail-like process. Concentration of muscle fibers is seen in the posterior extremity. Cuticle devoid of spines. Body of fluke measures 6.84 to 7.52 mm in length and 1.432 to 1.794mm in breadth (over ventral sucker). Sub-terminal oral sucker more or less oval in shape, it measures 0.378 to 0.468 mm in diameter, Acetabulum is well developed, larger, ventral sucker measuring of 0.784 to 0.958 X 0.592 to 0.767 mm in size, it situated in the anterior third of the body of fluke. Pre-pharynx present, which is short and measures 0.039 to 0.081 mm. Muscular pharynx well

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developed, it is of 0.242 to 0.264 X 0.224 to 0.338 mm and oesophagus measuring of 0.496 to 0.612 X 0.308 to 0.392 mm. Bifurcation of intestinal caeca starts 0.034 to 0.037 mm in front of ventral sucker. The intestinal caeca slightly tend to converge below the posterior testis. The testes are tandem, well developed, lies post equatorial region, located one behind other and lobulated. Anterior testis is larger than posterior one and measures 0.694 to 0.852 X 0.518 to 0.686 mm and posterior testis is smaller than anterior one, measuring 0.657 to 0.808 X 0.412 to 0.522 mm in size. Genital pore situated just few mm. in front of intestinal bifurcation. The club shaped cirrus sac is very long measuring 1.998 to 2.784 X 0.286 to 0.388 mm with one or two convolutions nearing the genital opening and in front of the ventral sucker. It is extended from the anterior level of the ovary in one of the specimens and from the posterior level in the other. Ovary more or less round or triangular, situated in the middle of the body, measures 0.312 to 0.369 X 0.268 to 0.356 mm. Vitelline follicles rounded and overlapping with each other extending from mid-level of the ventral sucker or acetabulum to just below the extremity of the intestinal caeca. The follicles of both sides meet behind the posterior testis. Eggs about 40 to 50 in number, measure 0.092 to 0.138 X 0.065 to 0.095 mm in size. Excretory pores seem to be situated at the tip of the conical tail like process. Y-shaped excretory bladder is indistinctly visible in the specimens.

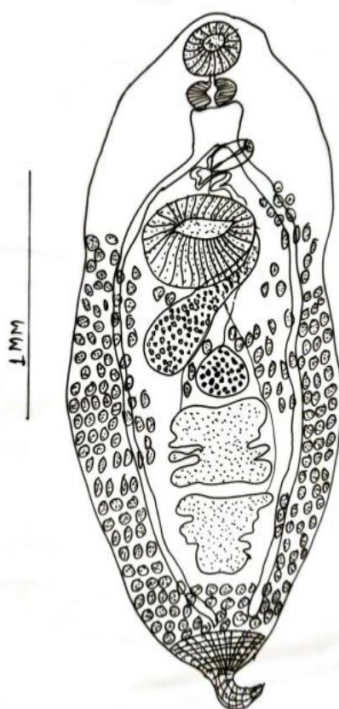


Figure 1: Camera Lucida diagram of *Psilochasmus oxyurus* (Creplin, 1825) Luhe (1909)

DISCUSSION

It has been observed that the criteria such as the length and the posterior extent of the cirrus sac, and the anterior extent of the vitellaria adopted by various authors to distinguish one species of *Psilochasmus* from another, are inadequate for they show variations within the same species. The present specimens differ from other known species in certain morphological characters. However, they show a general resemblance to *P. oxyurus* in overall size and in the disposition of various internal organs. It is evident that the testes, ovary, cirrus sac and ventral sucker in the present specimens are markedly larger and slight variations in the size of organs than those earlier described in *P. oxyurus* (Creplin, 1825) Luhe (1909).

In the present instance, however, the differences are so minor that it seems justifiable to consider them as redescribed species of *P. oxyurus* Creplin, 1825) Luhe (1909).

Significance of Work/Findings:

Trematodes are one of the most numerous and widespread groups of parasitic invertebrates among helminths, characterized by a complex life cycle. As the final host, digenetic flukes parasitize vertebrates, including domestic fowl. Infection of hosts with parasitic digenetic worms causes huge economic damage to poultry. The digenetic trematode *Psilochasmus oxyurus* (Creplin, 1835) Lühe, 1909, although with a large geographical distribution, for the first time it is reported in Nanded, which is endoparasites of domestic fowl, *Gallus domesticus*. Amongst all gastrointestinal trematodes, *Psilochasmus oxyurus* is of significant concern due to the parasite's direct life cycle and ability to survive extreme environmental conditions. Infection of hosts with parasitic digenetic worms causes huge economic damage to poultry. Redescrining any animal species, that is not showing any significant differences can have other significant contributions to the scientific communities. This tells us whether any morphological changes with or without taxonomic significance have occurred in the species over such a long period of time like after more than hundred years in this case. It allows researchers to place their findings in a historical context. Understanding how a species was described in the past and comparing it to the present can offer insights into the development of scientific thought, changes in ecological understanding, and the impact of human activities on the environment.

TAXONOMIC SUMMARY

Type species	: <i>P. oxyurus</i> Creplin, 1825) Luhe (1909).
Host	: <i>Gallus domesticus</i> .
Habitat	: Stomach and Intestine
Locality	: Kandhar, Mukhed, Degloor, Nanded M.S. India.
Period of collection	: February, 2018 to January, 2020.
No. of Specimen	: 106
Prevalence	: 106 specimens are collected from 85 host out of 240 examined
Accession number	: PGDZ/YMN/1-5/ February, 2018 to January, 2020.
Deposition	: Department of Zoology, Yeshwant Mahavidyalya, Nanded. (M.S.) India

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