Checklist of Helminth Parasites of Cyprinids from Poonch River and its Tributaries, Jammu and Kashmir, India

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ABSTRACT

Parasitological studies on helminths of freshwater fish in district Poonch, Jammu and Kashmir, India is scarce that should be well-understood in order to assess their biodiversity. As compare to other regions in Jammu and Kashmir, India, less comprehensive studies is available with unpublished records. Here, we present a list of parasites that we have collected comprises a list of helminth parasites, their host species, and locality. This study contributes to the diversity of helminth parasites from River Poonch, Jammu and Kashmir, India that helps to identify the lacunae in our knowledge of this region.

Keywords: Helminthes, Parasite, Poonch River, Jammu and Kashmir, India.

INTRODUCTION

The Poonch River and its tributaries constitute the major wetland of the district Poonch, Jammu and Kashmir, India. It is one the remotest district of Jammu and Kashmir that spreads over an area of 1674 sq km. The Poonch River flow into upstream to downstream and flow into the Mangla Lake that is the reservoir of Mangla Dam. During the months of summer, high monsoon rain and snow melt cause highest flow of Poonch River. Government of Pakistan has declared the entire 10-15 km downstream stretch of the Poonch River as a national park (Poonch River Mahaseer National Park) for the conservation of economically important and endangered fish species, Tor putitora (Hamilton, 1822). In order to study the helminth fauna from fish of Poonch River, district Poonch and its tributaries (called as Suran Nallah, Betar Nallah and Mendhar Nallah) the study was performed. A total of 40 species were reported in Poonch River and its tributaries (Datta, 2003). Tor putitora (Hamilton, 1822), Schizothorax richardsonii (Gray, 1832), Garra gotyla (Hamilton, 1830), Crossochelius latius (Hamilton, 1822), Schizothorax progastus (McClleland, 1839) and Mastacembelus armatus (Lacepède, 1800) are commonly available fish in the Poonch River and its tributaries. Few workers (Gupta et al., 2014, Anjum et al., 2014, Ahmed and Sharma, 2016) have contributed significantly to the knowledge of helminth parasites from Poonch River. Here, we are summarized a list of the helminth parasites, collected during our survey i.e., the monogenean, digenean, acanthocephalan and nematode parasites.

MATERIALS AND METHODS

The present study was carried out on the Poonch River and its tributaries- Suran Nallah, Betar Nallah and Mendhar Nallah, Poonch district (33°.25′ to 34°.01′ N and 73°.58′ to 74°.35′ E), Jammu and Kashmir, India. Fish host were collected and transported live to the laboratory, Government Degree College, Poonch, Jammu and Kashmir, India. Host was dissected and various organs like gills, liver, body cavity and intestine were examined under microscope for the presence of parasites. Monogenean parasites from gills; Allocraedium sp., acanthocephalan and nematodes from intestine and Clinostomum sp. from body cavity were collected. For the morphological study, methods related to concerned species described by various workers was followed (Caffara et al., 2013; Verma et al., 2017; Amin et al., 2022, Moravec et al., 2022). The data for each helminth species is ordered alphabetically in the tables presented in results section.
RESULTS AND DISCUSSION

We have collected 19 species of monogenean, digenean, acanthocephalan, and nematodes parasites from 09 genera of the Poonch River, Poonch district, Jammu and Kashmir, India. To date, only few parasites species from River Poonch have been reported (Gupta et al., 2014, Anjum et al., 2014, Ahmed and Sharma, 2016). Therefore, the richness of helminth species parasitizing cyprinid fish distributed in the Poonch River need to be explored for its helminth species richness. In addition, 09 helminths genera have been reported from 06 fish host belong to Actinopterygii and of family Cypriniformes and Mastacembelidae (Table 1 and 2). As Datta (2003) reported 40 species from Poonch River, only few have been screened for helminth parasites. Thus, only 15-20% fauna of fish have been screened that shows scarcity of studies from Poonch River and its tributaries.

In the present helminthological record and in terms of the helminth groups represented, monogeneans are the most widely represented group, with 03 genera and 08 species i.e., Dactylogyrus Diesing, 1850; Dogielius Bychowsky, 1936 and Diplozoon von Nordmann, 1832 (Table 2). Besides monogenean, nematodes are represented with Procamallanus (Spirocamallanus) Olsen, 1952; Physalopteridae Railliet, 1893 family sp. third stage larvae and Rhabdochona Railliet, 1916. In the present study, class Trematoda is represented by 04 species parasitizing 02 genera i.e., Allocreadium Looss,
1900 and Clinostomum Leidy, 1856 respectively. Regarding the phylum Acanthocephala, only 01 species belongs to the genus Neoechinorhynchus Stiles and Hassall, 1905 was found i.e., N. poonchensis Amin et al., 2022 (Table 2).

These results show that more helminth species can be obtained by increasing the screening in the Poonch River and its tributaries. To determine the real richness of the helminths from different hosts from Poonch River and its tributaries more sampling efforts are required to uncover their diversity. Moreover, this study clearly suggests that additional species of helminths would be discovered with the help of molecular methods that can resolve their phylogenetic relationships with taxa from different regions worldwide and any kind of confusions related to their taxonomy. Only such studies make a comprehensive understanding of helminth fauna of the Poonch River, Poonch district, Jammu and Kashmir, India.

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REFERENCES


