THE ZOOPLANKTON FAUNA OF BHAGALPUR (BIHAR) II. CLADOCERA

With 9 Figures

by

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インド、バガルプール地方（ビハール州）のプランクトン動物相 II. 枝角類

挿図 9

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Abstract: This paper is the outcome of a survey of Cladocera fauna of Bhagalpur (India). The number of species recorded were eleven from among five genera. All the species recorded in this paper are new record for Bihar, except *Moina dubia* GUERENE & RICHARD and *Ceriodaphnia rigaudi* RICHARD. Regarding the zoogeographical distribution of the cladocera of Bhagalpur, India it appears that it has greater affinity with South-East Asian, Australian and African fauna than the Palaearctic fauna.

Introduction

As the cladocera constitute a major item of fish-food, their study is of utmost importance for the proper development of fisheries. Our earlier knowledge of the cladocera (Arthropoda: Crustacea) fauna of Bihar was almost scanty, and even of India as a whole, very meagre. After the papers of BREHM (1963, 1950, 1953), SEWELL (1935) and NAYAR (1971) there are no important works worth mentioning.

The report is based on the collections made from the freshwater ponds of Bhagalpur (25°15' North lat. and 87°02' East Long.), Bihar (India) during January 1972 to December 1974. In a earlier paper, I have already described the rotifers, present in those collections (NASAR, 1973).

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Abiotic environment

Meteorological condition: The meteorological data is obtained by the Sabour Meteorological Station, Bhagalpur situated about 6 Kilometer from the studied area.

The mean maximum and minimum temperature varied from 23.3 to 44.0°C and 7.3 to 24.7°C respectively. The rainfall ranged from nil to 464.0 mm during the period of this study. The humidity varied from 29.0 to 89.0%.

Physico-chemical condition: Table 1 gives the range of the physico-chemical factors of the water bodies (NASAR, 1975) from where the cladoceran were collected.

Table 1. Physico-chemical factors of the water bodies (January 1972 to December 1974)

Factors	TNB Pond	Hathkatora pond	Bharwa pond	Bhatta pond
Temperature (°C)	25.0- 37.5	27.3- 39.4	27.1- 37.6	26.5- 39.0
Transparency (cm)	50.8- 84.5	5.5- 21.5	24.0- 95.0	34.2- 92.0
Dissolved oxygen (mg/l)	3.2- 15.8	3.7- 9.8	4.2- 10.3	4.4- 9.9
pH (unit)	6.8- 8.5	6.5- 8.7	6.9- 8.9	7.2- 8.3
Free CO (mg/l) 2	0.0- 8.0	0.0- 10.0	0.0- 2.0	0.0- 0.0
Total Alkalinity (mg/l)	76.0-160.0	46.0-108.0	64.0-130.0	80.0-196.0
Total hardness (mg/l)	90.0-125.0	78.0-124.0	106.0-155.0	100.0-164.0

Description of the species

Daphnia carinata KING 1853 (Fig. 7)

Rostrum and antennule *pulex* like but front not sinuate. Head carinated. Postabdomen tapered and not sinuate. WAGLER (1926) synonymised *D. similis* CLAUS.

Distribution: India-Rajasthan, Panjab, U. P., Gujrat, Mysore and Bihar (present record). Elsewhere-Cylone and Australia.

D. lumholtzi SARS 1885 (Fig. 9)

A thin carapace and the head often drawn out into a point anteriorly. Postabdomen has a sinerate dorsal margin with 11-13 anal denticles ending in well developed claws. The first and second abdominal process are well developed without any hairs.

Distribution: India-Rajasthan, U. P., Bengal, Madras, A. P. and Bihar (Present record). Elsewhere-Pakistan, Cylone, Palestine, Syria Egypt and Australia.

D. pulex (De GEER) 1778

Head and carapace from brond oval. Anterior margin of head concave. Distribution: India-Bihar (present record). Elsewhere-America.

Simocephalus vetulus SCHODLE 1885 (Fig. 3)

Frons rounded, ocellus elongate. Carapace markings as obliqueparallel lines and usually without carapace-spine.

Distribution : India-Panjab, Rajasthan, U. P., Kashmir and Bihar (present record).
Elsewhere-England, Switzerland, Russia and America.

S. elizabethae (KING) 1852 (Fig. 4)

Valves transversely striated. Postabdomen broad with indentation in which anus opens. Body not symmetrical. Posterior prominence very prominent. The species differs from *S. vetulus* (O.F. Muller) in the shape of its posterior boarder of the carapace.

Fig. 1. *Moina dubia*. Fig. 2. *Ceriodaphnia rigaudi*. Fig. 3. *Simocephalus vetulus*.
Fig. 4. *Simocephalus elizabethae*. Fig. 5. *Diaphanosoma sarsii*. Fig. 6. *Diaphanosoma exicum*.
Fig. 7. *Daphnia cainata*. Fig. 8. *Ceriodaphnia reticulata*. Fig. 9. *Daphnia lumholtzi*.

Distribution: India-Rajasthan, Bengal, M. P. and Bihar (present record). Elsewhere-Cylone, Thailand, Sumatra, Jawa and Australia.

Moina dubia GUERENE & RICHARD 1892 (Fig. 1)

The proximal part of ventral margin valves with strong spines, the distal part with groups of spinules, the proportion 1 : 2 of the reduced distal part to the broad proximal part of the post-abdomen. Accessory ridge on the end-claw absent. The head depression at an angle of 70°.

Distribution: India-Rajasthan, Bengal and Bihar. Elsewhere-Australia, Africa, Java and Europe.

Ceriodaphnia rigaudi RICHARD 1894 (Fig. 2)

Antennules small, valves oval and rounded. No post-anal extension of post-abdomen. Presence of short spine or horn on its head in front of the antennules. Two abdomen processes. Post-abdomen with 5-6 anal spines. Claws smooth or denticulate.

Distribution: India-West Bengal, A. P., Mysore, Gujrat, M. P. and Bihar. Elsewhere-Japan, Egypt, S. Africa and South America.

C. reticulata (JURINE) 1820 (Fig. 8)

Reticulation of the shell is not distinct. There are only 3-7 anal denticles on the postabdomen and a pecten of 5 teeth. Indistinct reticulation on the shell. Head without spine. Claws pectinate.

Distribution: India-Rajasthan and Bihar (present record). Elsewhere-South America.

Diaphanosoma excisum SARS 1885 (Fig. 6)

The species is easily recognisable from allied species by its shorter and the absence of hairs on the sides of postabdomen. Body is more robust and the supero-posteal angles are markedly deflected.

Distribution: India-Rajasthan and Bihar (present record). Elsewhere-Australia.

D. excisum var. *longirimsis* EKMAN 1904

This variety very much resembles with *D. excisum* var. *stinglini* Jenkin in the presence of hairs at the sides of the postabdomen and with the type in the number of setae on the carapace border, but differs from it in the greater length of the antennae which surpass the posterior border of the carapace.

Distribution: India-Rajasthan, West Bengal and Bihar (present record). Elsewhere-Sumatra and Africa.

D. sarsii RICHARD 1895 (Fig. 5)

The species differs from *D. excisum* and its varieties mainly by the greater breadth of the shell-duplicator and more spines at its infero-posteal corner.

Distribution: India-Rajasthan, M. P., and Bihar (present record). Elsewhere-Cylone, Africa and South America.

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摘 要

インドにおける枝角類の知識は貧弱である。筆者は1972年1月から1974年12月にかけて、バガプール地方にある4つの池について、枝角類と池の無機的環境の調査をした。その結果5属11種が採集され、*Moina dubia* GUERENE & RICHARD, *Ceriodaphnia rigaudi* RICHARDの2種以外はこの地方では初めての記録である。調査した種類は、これらの分布からみると、東南アジア・オーストラリア・アフリカなどの動物相と類縁関係にある。