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ON SOME FRESHWATER BRYOZOA PRESENT IN THE UNNAMED COLLECTION OF ZOOLOGICAL SURVEY OF INDIA FROM UTTAR PRADESH

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INTRODUCTION

Freshwater bryozoa belongs to smaller coelomate groups comprising five families of the phylum bryozoa with relatively simple body organization. They live in the aquatic environment of ponds, reservoirs, lakes, streams and adhering to the surface of the substratum *i.e.*, aquatic weeds, logs, stones, bricks etc. They live together in the form a colony, usually yellowish-brown, pinkish-brown, dark-brown, reddish-brown, green or black in colour. Approximately 5000 living species of bryozoa exist today of which between 45 and 50 occur in freshwater. The majority of these belong to the class Phylactolaemata.

Work on Freshwater bryozoa in India initiated by Annandale (1911) followed by Roonwal (1969), Rao (1972, 1976, 1991), Rao *et al.*, (1962, 1978, 1979, 1985), Srivastava (1981, 1985), Agarwal *et al.*, (1981) and Chaubey *et al.*, (1985) from different localities. As a result twenty species have so far been recorded from India, out of which only five species are reported from Uttar Pradesh. The present author has dealt with nine species from West Bengal, five from Meghalaya, four from Tripura, four from Sikkim and six species from Andhra Pradesh.

The present work is based on the study of the Freshwater bryozoa collected from the four districts of Uttar Pradesh. The material was collected through field surveys from Basti, Deoria and Gorakhpur districts during June, 1989 and from Kheri district during April 1990. The material so far collected is represented by five species under four genera and three families, none of them is new to science but all the species show new locality records. The present paper deals with the synonymy (original and latest ones) and distribution of five species.

SYSTEMATIC ACCOUNT

A. Class GYMNOLAEMATA

Order CTENOSTOMATA

I. Family HISLOPIIDAE

1. Genus *Hislopia* Carter1. *Hislopia lacustris* Carter, 1858

B. Class PHYLACTOLAEMATA

II. Family FREDERICELLIDAE

2. Genus *Fredericella* Gervais2. *Fredericella sultana* (Blumenbach, 1779)

III. Family PLUMATELLIDAE

3. Genus *Plumatella* Lamarck3. *Plumatella diffusa* Leidy, 18524. *Plumatella fruticosa* Allman, 18444. Genus *Hyalinella* Jullien5. *Hyalinella punctata* (Hancock, 1850)

A. Class GYMNOLAEMATA

Order CTENOSTOMATA

I. Family HISLOPIIDAE

1. Genus *Hislopia* Carter1. *Hislopia lacustris* Carter, 18581858. *Hislopia lacustris* Carter, *Ann. Mag. Nat. Hist.*, (3)1 : 169.1880. *Norodonia combodgiensis* Jullien, *Bull. Soc. Zool. France*, 5 : 77.1976. *Hislopia lacustris* Rao, *Rec. zool. Surv. India*, 69 : 331.

Material : (1) Kheri Dist. – 10 colonies, Gola (South), 25.iv.1990; 10 colonies, Gola (east), 27.iv.1990, coll. Dr. L.K. Ghosh & party.

Distribution : Uttar Pradesh : As above and in other places.

Elsewhere : India : Kolkata, Bulandshahr, Rewa, Indore, Mumbai, Malwatal, Chilka Lake, Chennai, Andhra Pradesh, West Bengal and Meghalaya.

Out side India : Africa; Europe, West Germany, Russia; Japan; Burma; America.

Remarks : The material conforms in general with the specimens identified and recorded by Annandale (1911) from Kolkata. Overgrowth of colonies was observed in the material studied as well as reported by Rao (1976) but Annandale (1911) reported "one zooecium, however never grows over another" Present investigation indicates that *Hislopia lacustris* is the first time recorded from this area.

B. Class PHYLACTOLAEMATA

II. Family FREDERICELLIDAE

2. Genus *Fredericella* Gervais

2. *Fredericella sultana* (Blumenbach, 1779)

1779. *Tubularia sultana* Blumenbach, *Ann. Nat. Hist.*, **13** : 330.

1909. *Fredericella indica* Annandale, *Rec. Indian Mus.*, **3** : 373.

1976. *Fredericella sultana* Rao, *Rec. zool. Surv. India*, **69** : 334.

Material : Gorakhpur District. – 24 colonies, Ramgarh Lake, 6.vi.1989, coll. H.C. Ghosh & party.

Distribution : Uttar Pradesh (as above) and in other places.

Elsewhere : India : Kashmir, Madhya Pradesh, Orissa and Punjab.

Outside India : Europe; America; Asia and Africa.

Remarks : The paipoblasts are larger and often ornamented in the present material. The kidney-shaped paipoblasts described by Annandale (1911) could not be observed. Present investigation indicates that *Fredericella sultana* is recorded for the first time from this area.

III. Family PLUMATELLIDAE

3. Genus *Plumatella* Lamarck

3. *Plumatella diffusa* Leidy, 1852

1852. *Plumatella diffusa* Leidy, *P. Ac. Philad.*, **5** : 261.

1911. *Plumatella diffusa* Annandale, *The Fauna British India*, p. 223.

Material : (1) Basti dist. – 10 colonies, Kuano river, 16.vi.1989, coll. Sri. H.C. Ghosh & party.

(2) Deoria dist. – 2 colonies, Deoria, 27.vi.1989, coll. Sri. H.C. Ghosh & party.

(3) Kheri dist. – 10 colonies, Gola, 29.iv.1990, coll. Dr. L.K. Ghosh & party.

Distribution : Uttar Pradesh : As above.

Elsewhere : India : Bengal, Kolkata and neighbourhood, E. Himalayas, Gangtok, Native Sikkim and Punjab.

Outside India : North America; Europe; Bangladesh, Pakistan.

Remarks : *P. diffusa* in lower Bengal is a cold-weather species. It is remarkable for the enormous number of gemmules it produces and is usually found either on floating objects such as the stems of certain water plants or on stones or bricks at the edge of ponds. Present investigation indicates that *Plumatella diffusa* is the first time recorded from this area.

4. *Plumatella fruticosa* Allman, 1844

1844. *Plumatella fruticosa* Allman, *Ann. Mag. Nat. Hist. Ser. 1*, **13** : 328.

1976. *Plumatella fruticosa* Rao, *Rec. zool. Surv. India*, **69** : 338.

Material : (1) Basti dist. – 10 colonies, Bakhira Tal Lake, 21.vi.1989, coll. Sri H.C. Ghosh & party.

(2) Deoria dist. – 1 colony, Deoria, 27.vi.1989, coll. Sri H.C. Ghosh & party.

(3) Gorakhpur dist. – 5 colonies, Rajghat, 9.vi.1989, coll. Sri H.C. Ghosh & party.

(4) Kheri dist. – 12 colonies, Gola, 23.iv.1990, coll. Dr. L.K. Ghosh & party.

Distribution : Uttar Pradesh : As above.

Elsewhere : India : Kolkata, Chilka Lake, Travancore, Mumbai, Ganges delta and the Himalayan region.

Outside India : Europe, North America, Bangladesh, Africa, Pakistan.

Remarks : *Plumatella fruticosa* is well distributed in Uttar Pradesh. The colonies were observed profusely grown and shrubby. The floatoblasts are long and elliptical with a smooth capsule. The sessoblasts are large and elongated with markings on the surface. Present investigation indicates that *Plumatella fruticosa* is the first time recorded from this area.

Genus *Hyalinella* Jullien

5. *Hyalinella punctata* (Hancock, 1850)

1850. *Plumatella punctata* Hancock, *Ann. Mag. Nat. Hist. Ser. 11*, **5** : 173.

1976. *Plumatella punctata* Rao, *Rec. zool. Surv. India*, **69** : 340.

Material : (1) Basti dist. – 10 colonies, Bakhira Tal (Lake), 21.vi.1989; 10 colonies, Kuanoriver (Gandhinagar), 16.vi.1989, coll. Sri H.C. Ghosh & party.

(2) Deoria dist. – 10 colonies, Kunnanala, 28.vi.1989; 12 colonies, Deoria, 30.vi.1989; 10 colonies, Hanuman Temple, 27.vi.1989, coll. Sri H.C. Ghosh & party.

(3) Gorakhpur dist. – 10 colonies, Raighat, 9.vi.1989, coll. Sri H.C. Ghosh & party.

(4) Kheri dist. – 10 colonies, Gola, 23.iv.1990; 8 colonies, Gola, 22.iv.1990, coll. Dr. L.K. Ghosh & party.

Distribution : Uttar Pradesh : As above, elsewhere India : Kolkata, Rajasthan, Rewa, Indore.

Outside India : Europe; North America.

Remarks : In Uttar Pradesh *H. punctata* flourishes both during the "rains" and in winter. Floatoblasts are rounded or oval with a large capsule and agree in general with the earlier descriptions. This is first time recorded from Uttar Pradesh.

SUMMARY

The paper deals with a systematic account of 5 species of fresh water Bryozoa hitherto known from the 4 (four) districts of Uttar Pradesh. Each of the species is provided with a synonymy (original and latest ones) and distribution.

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