NEW REPORT OF *DICHTOMOSIPHON TUBEROSUS* (A.BR.) ERNST AND *VAUCHERIA SESSILIS* D.C. OF THE FAMILY VAUCHERIACEAE FROM HOOGHLY DISTRICT, WEST BENGAL, INDIA

Sankar Narayan Sinha and Nilu Halder
Department of Botany, University of Kalyani
Kalyani 741235, West Bengal, India
Email: sinhasn62@yahoo.co.in

**ABSTRACT**

The present work deals with the morpho-taxonomic description of two species namely *Dichotomosiphon tuberosus* (A.Br.) Ernst and *Vaucheria sessilis* (Vauch.) D.C. of the family Vaucheriaceae under the order Heterosiphonales belonging to the class Xanthophyceae for the first time explored from Hooghly district, West Bengal, India. The two taxa constitute new record for the aforesaid district.

**Key words**: Taxonomic description, Vaucheriaceae, Hooghly district.

**INTRODUCTION**


Since the two fresh water algal species belonging to Vaucheriaceae have not been explored earlier from the Hooghly district, W.B., the present work would be helpful for documenting these species to know the biodiversity of Xanthophyceaeen species in the district.

**MATERIALS AND METHODS**

Algal samples were collected in sterilized glass containers from different aquatic bodies viz. pond at Tribeni (22.99°E and 88.40°N), Balarambati (22.82°E and 88.25°N), Khal (i.e., canal) at Khamargachi (23.05°N and 88.25°E), canal at Behula (23.18°E and 88.42°N) and rice field at Chinsurah (22.90°E and 88.39°N) of Hooghly district (Fig. 1). Physicochemical parameters of these water bodies were measured. Detail studies of algae were made by examining the specimens under Olympus microscope (Model-CH20i) for determination of species. Samples were preserved in 4% formalin. Identification of different taxa was accomplished with the help of authentic literature and monograph (Venkataraman 1961, Verma and Verma 1978, Ampili and Panikkar 1994, Dey 2007).
Table 1. Physicochemical characteristics of different aquatic bodies in different months of collection (Mean±SE)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Pond water at Tribeni</th>
<th>Canal water at Khamargachhi</th>
<th>Pond water at Balarambati</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.6±0.02</td>
<td>7.7±0.04</td>
<td>7.7±0.02</td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>19.5±0.11</td>
<td>24.0±0.53</td>
<td>29.0±0.51</td>
</tr>
<tr>
<td>DO (mg/L)</td>
<td>8.4±0.06</td>
<td>9.0±0.11</td>
<td>8.2±0.07</td>
</tr>
<tr>
<td>BOD (mg/L)</td>
<td>7.4±0.12</td>
<td>6.8±0.17</td>
<td>7.2±0.18</td>
</tr>
<tr>
<td>COD (mg/L)</td>
<td>110±5.7</td>
<td>120±5.7</td>
<td>130±5.7</td>
</tr>
<tr>
<td>NO3-N</td>
<td>0.08±0.02</td>
<td>0.17±0.04</td>
<td>0.3±0.04</td>
</tr>
<tr>
<td>PO4-P</td>
<td>0.16±0.02</td>
<td>0.12±0.03</td>
<td>0.09±0.01</td>
</tr>
</tbody>
</table>

Vaucheriaceae were morpho-taxonomically described from Hooghly district, West Bengal with ecological note and significance for the first time. Each specimen was provided with its currently accepted author (s)’ name.

Key to the genera
1a. Thallus di- or tri-chotomously branched with constrictions at the point of branching; reserve food material starch------1. *Dichotomosiphon* Ernst
b. Thallus not so, but more or less irregularly branched; reserve food material not starch ----------

---------------------------2. *Vaucheria* DC.

Genus: 1. *Dichotomosiphon* Ernst
Order: Heterosiphonales
Family: Vaucheriaceae
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1. *Dichotomosiphon tuberosus* (A.Br.) Ernst (Pl. 1, Figs. 1a, 1b and 3.)
*Vaucheria tuberosa* A.Br. 1856.
Heering in Süsswasserflora 7: 96. figs. 93, 94. 1921.
Venkataraman, Vaucheriaceae 38. figs. 18 a-f. 1961.

Fig. 1. Map of Hooghly district, West Bengal.

RESULTS AND DISCUSSION

The physico-chemical parameters of different water bodies studied are given in Table 1. The pH in all the aquatic ecosystems studied was alkaline in nature. Presence of phosphate and nitrate nitrogen along with the physicochemical parameters favoured the growth of algae in these waters. Two newly recorded Xanthophyceaean species namely *Dichotomosiphon tuberosus* (A.Br.) Ernst and *Vaucheria sessilis* (Vauch.) D.C. belonging to the order Heterosiphonales of Vaucheriaceae were morpho-taxonomically described from Hooghly district, West Bengal with ecological note and significance for the first time. Each specimen was provided with its currently accepted author (s)’ name.

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Heering in Süsswasserflora 7: 96. figs. 93, 94. 1921.
Venkataraman, Vaucheriaceae 38. figs. 18 a-f. 1961.
**Description:** Thallus aquatic, monoecious, filamentous, siphon like, di or tri-chotomously branched with constrictions at and in between dichotomies; filaments 73.1-307.2 µm long and 73.1-80.4 µm broad; constrictions 58.5-65.8 µm broad; oogonium spherical, solitary without a beak, slightly depressed near attachment, 277.9-279.7 µm broad; usually one oogonium in between two antheridia at the terminal end of fruiting branches, sometimes one oogonium by the side of one antheridium; oospore globose, not filling the oogonium, light dark- green in colour, 252.5-265.8 µm broad; antheridium cylindrical or club shaped, slightly undulating arising from terminal branches, 131.6-193.8 µm long and 58.5-60.3 µm broad; chloroplasts numerous, small disc-shaped without pyrenoids.

**Habitat:** Grows on sandy mud of different types of fresh water habitats viz. pond at Tribeni, khal (canal) at Khamargachi, canal at Behula and rice field at Chinsurah, West Bengal, India.

**Collection No:** 814, 1025

**Date:** 03.01.2011, 10.03.2011

**Significance:** Primary producer and a component of food chain in aquatic habitat.

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Genus: 2. *Vaucheria* D.C.

Order: Heterosiphonales

Family: Vaucheriaceae

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2. *Vaucheria sessilis* (Vauch.) D.C., Flore Francaise 2: 63. 1805. (Pl. 1, Figs. 2a, 2b. and Figs. 4a, 4b.)

Randhawa, in Arch. f. Protistenk 92: 538. fig. 1. 1939.

Venkataraman, Vaucheriacese 68. fig. 46a. 1961.

Kant and Gupta, Algal Fl. Ladakh 117. pl.65. figs. 2a, b. 1998.


*Vauchria caespitosa* Vauch. 1805.

**Description:** Thallus slightly yellowish green, forming velvety mats, compactly interwoven on submerged bottom muddy soil; filaments attached by delicate colorless rhizoids; filaments monoecious, irregularly branched, cross wall absent (except during reproductions), coenocytic, 453.0-498.0 µm long and 58.0-68.2 µm broad; chloroplasts numerous, ovoid; pyrenoids absent; antheridia between two oogonia, hook shaped to circinate, 63.0-95.0 µm long and 32.2-32.67 µm broad; oogonia two which are ovate, sessile, slightly oblique, 83.0-91.0 µm long and 62.0-65.6 µm broad; beak oblique; oospore dark green, completely filling the oogonium, 75.0-94.7 µm long and 52.0-65.7 µm broad.

**Habitat:** Free-floating and attached to bottom muddy soil of pond at Tribeni and Balarambati. West Bengal, India.

**Collection No:** 811, 812, 1012

**Date:** 03.01.2011, 07.02.2011

**Significance:** Primary producer and a component of this aquatic food chain.

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