Bangladesh J. Bot. **45**(1): 253-256, 2016 (March) **- Short communication**

# *CHARA BENTHAMII* A. BR. VAR. *LONGICOROLLATA* KASAKI, A NEW RECORD FOR BANGLADESH

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*Key words:* Characeae, Boral River, New record, *Chara longicorollata*

**Abstract**

A list of charophytes of the Boral River is prepared based on literature records and herbaria collections. These include *Chara braunii* Gmelin, *C. globularis* Thuill., *C. benthamii* A. Br. var. *longicorollata* Kasaki, *C. vulgaris* Linn., *Lychnothamnus barbatus* (Meyen) Leonh., *Nitella hyalina* (DC.) Ag. and *Nitellopsis obtusa* (Desv.) J. Groves. Of these *C. benthamii* A. Br. var. *longicorollata* Kasaki is a new record for Bangladesh.

So far about 37 species of charophytes are known from Rajshahi, Chapai-Nawabgonj, Thakurgaon and Rangpur districts (Naz *et al.* 2011). Charophytes had been considered as an important macro-algal indicator for a good water quality (Schubert and Blindow 2003). The present study was undertaken to study the occurrence of charophytes in the River Boral within a span of 12 years (2002-2014).

River Boral, a tributary of River Padma It lies between 24°14' and 24°22' north latitudes and 88°46' and 88°52' east longitude. A total of 5 km stretch of the river has been surveyed for the occurrence of Characeae

Specimens of Characeae from the Boral River were collected in the month of June-August, 2014. All the collected samples were fixed with 4% formaldehyde solution and deposited in the herbarium of Phycology and Limnology Laboratory, Department of Botany, University of Rajshahi. In the present investigation, one specimen of Characeae collected from the River Boral was identified as *Chara benthamii* A. Br. var. *longicorollata* Kasaki and hitherto recorded as new report for Bangladesh. Systematic accounts of *C. benthamii* A. Br. var. *longicorollata* Kasaki together with its ecological notes have been provided below.

**Taxonomic enumeration**

1. *Chara benthamii* A. Br. var. *longicorollata* Kasaki [Syn.: *Chara fibrosa* f. *longicorollata* (Kasaki) Wood, Taxon 11:13.1962] **(Figs 1-10**)

   (Wood and Imahori 1964, 132 & 1965, 293)

Plant monoecious, up to 29 cm high. Axes slender, up to 472 µm in diameter. Branchlets height 1 cm, 9-10 in a whorl, segments 4. Cortex diplostichous, tylacanthous. Spine cells solitary, elongated, 400- 958 µm long. Stipulodes well developed, 276 µm long. Bract cells 3-5. Bracteols 2. Gametangia conjoined. Oogonium 243-744 µm long, 172-458 µm broad. Corona elongated, slightly connivent to spreading, 186-215 µm long, 57 µm broad. Antheridium 415 µm in diameter. Oospore not seen.

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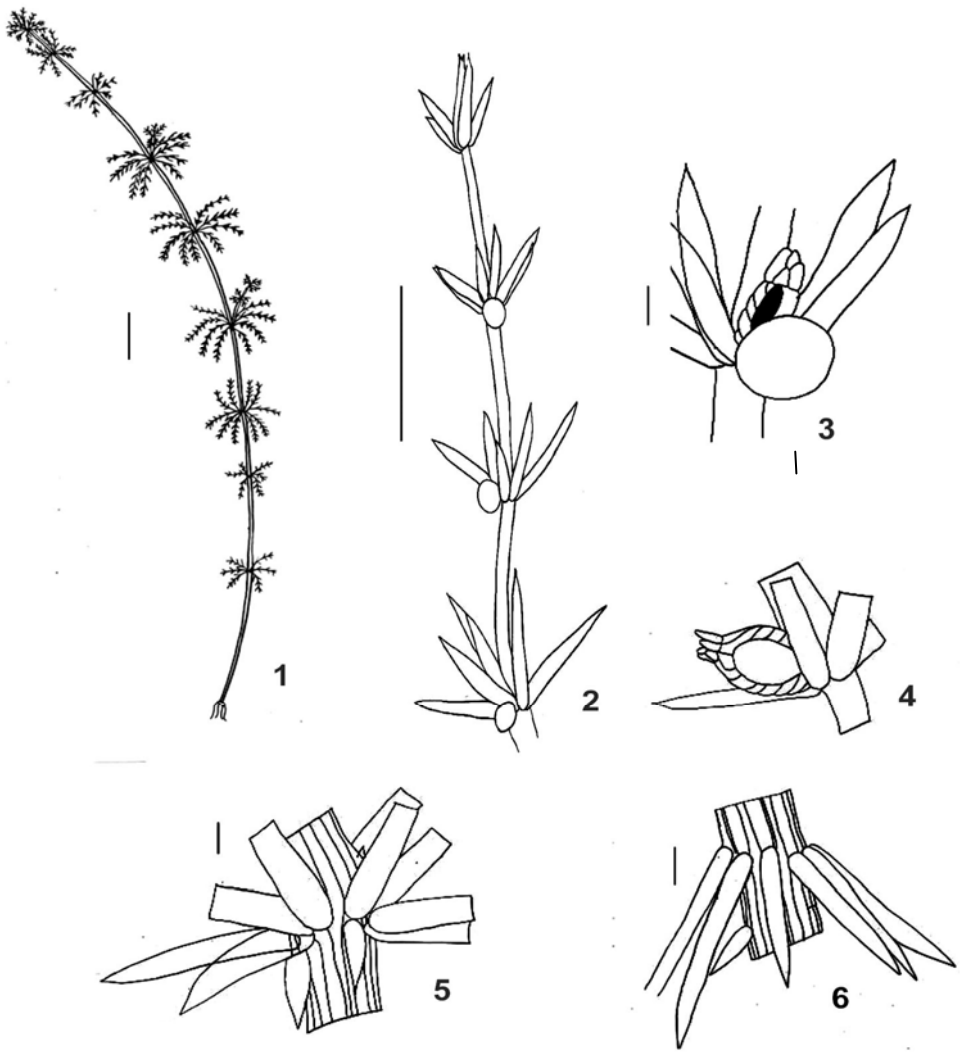


Figs 1-6. *Chara benthamii* A. Br. var. *longicorollata* Kasaki. 1. Habit (Scale = 2 cm). 2. A branchlet (Scale = 2 mm). 3. Gametangia with connivent corona 4. Oogonium with slight spreading corona 5. Stem nodes with stipulodes 6. Spine cells (Scales= 0.2 mm).

*Notes:* Wood and Imahori (1965) reported *C. fibrosa* with long appendages (corona, spine cells, stipulodes and bract cells). They observed the holotype of *C. longicorollata* and the corona length was not consistently long (180-240 µm high). Chatterjee (1979) reported this species as *Chara fibrosa* var. *fibrosa* f. *longicorollata* from India and the length of corona was 225-290 µm high. Kasaki (1964) described this as *Chara benthamii* A. Br. var. *longicorollata* Kasaki from Japan. This particular taxon was reported to be endemic in Japan (Chatterjee 1979). Existing literature reveals that this species was previously not reported from Bangladesh.

*Material studied and habitat condition*: Collection number 129 (*Chara braunii* Gmelin), Col. No. 130 (*C. benthamii* A. Br. var. *longicorollata* Kasaki), Col. No.131 (*Nitella hyalina* (DC.) Ag.,)& Col. No.132 (*Nitellopsis obtusa* (Desv.) J. Groves), June 10, 2014. Boral River, Charghat, Rajshahi. *C. benthamii* A. Br. var. *longicorollata* Kasaki was collected from a large population and associated with *Nitellopsis obtusa*. pH of water ranged 6.8-7.0 and water temperature from 32-34ºC, Dissolved Oxygen (DO) concentration ranged 6.4-10.47 mg/l during the period of sampling (10am-1 pm).

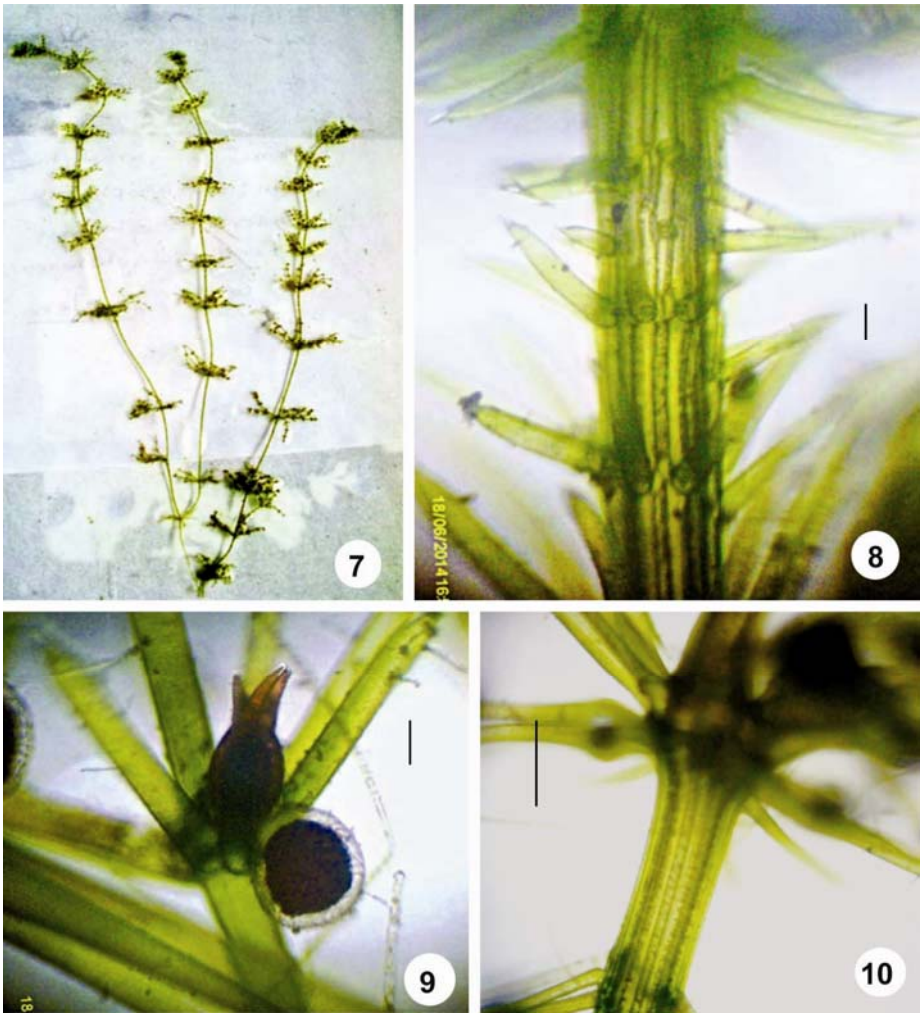


Fig. 7-10. *Chara benthamii* A. Br. var. *longicorollata* Kasaki. 7. Habit. 8. Spine cells. 9. Oogonium with elongated corona. 10. Stem nodes with stipulodes (Scales = 0.2 mm).

*Distribution:* Asia: Japan (Kasaki 1954 and Raam 2010), India (Chatterjee 1979).

As *C. longicorollata* is only reported from Japan and India (Kasaki 1954, Raam 2010) and Bangladesh (present study), it could be designated as an Asian species. Naz *et al.* (2011) carried out a field study from 2002-2008 in the river Boral and stated that among charophytes, *Chara*

*vulgaris* and *Nitella hyalina* have been growing most abundantly. They also mentioned in their study that *Lychnothamnus barbatus* is a rare taxon of charophytes in the river Boral. During the present study (June-August 2014) *Chara vulgaris* and *Lychnothamnus barbatus* were not

**Table1 1. List of the charophyte taxa reported from Boral River (2002-2014).**

| Charophytes | Naz *et al*. (2011) | Present study |
|---|---|---|
| 1. *Chara braunii* Gmelin | - | + |
| 2. *C. globularis* Thuill. | + | - |
| 3. *Chara benthamii* A. Br. var. *longicorollata* Kasaki | - | + |
| 4. *C. vulgaris* Linn. | + | - |
| 5. *Lychnothamnus barbatus* (Meyen) Leonh. | + | - |
| 6. *Nitella hyalina* (DC.) Ag. | + | + |
| 7. *Nitellopsis obtusa* (Desv.) J. Groves. | - | + |

+:present, - :absent

found, but *Nitella hyalina* was collected. In the present investigation three taxa namely, *Chara braunii* Gmelin, *Chara benthamii* A.Br.var. *longicorollata* Kasaki and *Nitellopsis obtusa* (Desv.) J. Groves have been reported from the Boral River for the first time (Table 1). The study reveals a change in the species composition of the charophytes from the river Boral. Change in physical chemical condition, flow and depth of water may be the prime factors acting in the change of species composition. Kwandrans (2007) stated change in the species composition of charophytes may have been caused by competition with other hydrophytes for light.

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*(Manuscript received on 16 June, 2014; revised on 20 September, 2014)*