

OCCURRENCE OF THE GENUS *BULBOCHAETE* (ZYGNEPHYCEAE SHAMEEL) FROM GUJRANWALA AND LAHORE DISTRICTS OF PAKISTAN

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Abstract: Specimens of the green algal genus *Bulbochaete* C. A. Agardh (Family: Oedogoniaceae, Order: Zygnemales, Class: Zygnemophyceae, Phylum: Chlorophyta) were collected as epiphytes from two different freshwater ponds in Gujranwala and Lahore Districts of the Punjab Province, Pakistan, during 19th February and 30th March 2004. This genus is being reported for the first time from any area of Pakistan. The material was taxonomically investigated and found to belong to two species.

Keywords: Algae, Chlorophyta, *Bulbochaete*, taxonomy, freshwater

Introduction

A large survey for collection of green algae various districts of the north-eastern areas of Pakistan was started in December 2003. Some of these collected algae were taxonomically investigated and described [1-3]. In this connection a detailed taxonomic study of the genera *Oedogonium* and *Zygnema*, belonging to the Class Zygnemophyceae Shameel [4-5], was carried out [6-7]. This paper is a continuation of that investigation.

Materials and Methods

Collections were made from two different freshwater habitats of the Gujranwala and Lahore Districts of the Punjab Province, Pakistan, during 19th February and 30th March 2004. The specimens were collected by hand-picking from various freshwater habitats (running water, stagnant ponds, streams) in Gujranwala and the areas of Lahore district and preserved in 4% formalin [8]. The specimens were taxonomically determined with the help of published literature [9-13]. The voucher specimens are kept in the Phycology & Phycochemistry Lab., MAH Qadri Biological Research Centre, University

of Karachi, where this research work was conducted.

Results and Discussion

On the basis of their morphological and cytological characteristics, the following two species of *Bulbochaete* were identified and taxonomically described, which were found to grow in two different districts of the Punjab Province of Pakistan.

Bulbochaete C. A. Agardh 1817: 71

Thallus is branched, filamentous, attached, some cells bear bulbous base, hair are laterally or anteriorly present. Most species are epiphytic, cells are pyriform and reproduction is oogamous. The following two species of this genus were detected, which may be distinguished as follows:

1. Branching unilateral *B. mirabilis* (1)
Branching bilateral *B. intermedia* (2)

B. intermedia De Bary 1854:72

References: [9:249, 10:35, 11:151, 13:412].

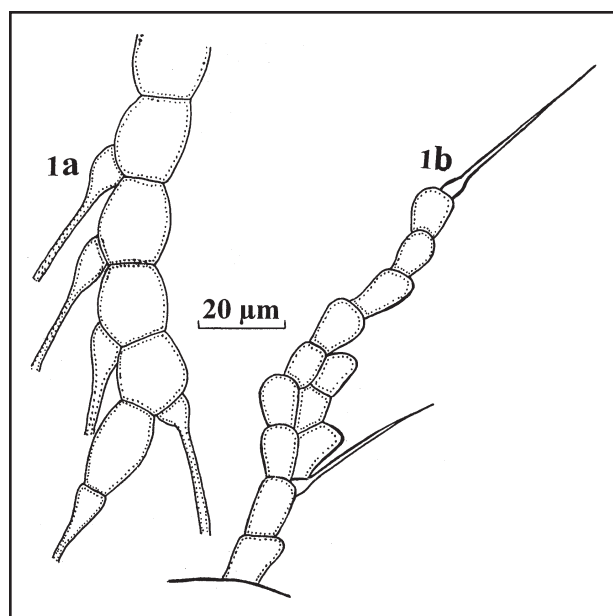


Figure 1. Species of the genus *Bulbochaete*:
a. *B. intermedia*, b. *B. mirabilis*.

Morphological characters: Filaments branched, branching bilateral, attached to other filamentous algae (Fig. 1a).

Cytological features: Vegetative cells 17-20 µm broad and 35-70 µm long, sub-cylindrical or pyriform, 10-12 µm wide at septa, 17-18 µm wide at upper side (maximum width); hair colourless, very long, 3-4 µm wide, with bulbous base (7-6 µm broad), alternate or on the same side; terminal cells with two hair.

Reproductive structures: Reproductive structures were not observed.

Locality: Gujranwala District: Nandipur (19-2-2004).

Geographical distribution: Previously reported from U.S.A., Canada, Greenland, Europe, Africa and Australia.

Remarks: Collection was carried out during winter. The species was found in ponds, epiphytic on such algae as *Chara* spp. and *Spirogyra* spp.

2. *B. mirabilis* Wittrock 1871:171

References: [9 : 249, 10 : 32, 11 : 152, 12 : 422, 13 : 412].

Morphological characters: Thallus small, richly branched, branching unilateral; attached by basal cells (Fig. 1b).

Cytological features: Cells 14-16 µm broad and 17-19 µm long; bearing a long colourless hair with bulbous base.

Reproductive structures: Antheridia and oogonia not observed.

Locality: Lahore District: Lakho Dahr (30-3-2004).

Geographical distribution: Previously reported from U.S.A., Greenland, Europe, Siberia, Mongolia, Africa and Australia.

Remarks: The collection was made during spring from freshwater ponds, being epiphytic on *Vaucheria* spp.

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