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STAURODESMUS IN PESHAWAR VALLEY

FAZLI MALIK SARIM AND M.A.F. FARIDI

Department of Botany,
University of Peshawar, Peshawar, Pakistan.

Abstract

Four species of *Staurodesmus* have been described from Peshawar valley which occur in basic waters. These are new records for the country.

Introduction

Staurodesmus belongs to the family Desmidiaceae of the order Zygnematales. The desmid flora of Peshawar valley has not been explored so far. During a study, 4 species of *Staurodesmus* were encountered which are described in this report.

Material and Method

The study area consisted of Peshawar Valley in districts of Mardan and Peshawar spread over an area of 5,053 sq. miles in the North-Western edge of Pakistan between 70°.25'E and 72°.47'E longitude and 33°40'N and 34°.311'N latitude. The soil has a pH range of 7.1–7.4 with an average annual rain fall of about 20", mostly in winter.

Specimens collected were plankton-net, were squeezed and the aquatic vegetation by scraping were studied in fresh condition. The specimens were also preserved in 3% formaline and deposited in the Herbarium of the Department of Botany, University of Peshawar. All the drawings were made by Camera Lucida.

CHARACTER OF *STAURODESMUS*

Cells solitary, divided into two semicells by a median sinus, constriction generally deep, showing 2 or 3 apical or several prolonged angles, with one developed spine, sometimes reduced to a papilla, very rarely with a second spine above the first; cell wall smooth, without verrucae; chloroplast axile, generally with a central pyrenoid, rarely with 2 or several pyrenoids.

KEY TO THE TAXA

1.	Length of the cell less than 20 µm long	*S. extensus*
1.	Length of the cell more than 20 µm long	2
	2. Semicell in front view oval	*S. dickiei*
	2. Semicell in front view otherwise	3

3.	Sinus acute	*S. convergens*
3.	Sinus wide	*S. cornutus*

DESCRIPTION OF THE SPECIES

1. *Staurodesmus convergens* (Ehr.) Teiling, Ehr. Syn: *Arthrodesmus convergens.*

Compere, 1977: 142; Croasdale, 1957: 124; Gayoso, 1975, 1975: 587; Gronblad, 1948: 417; Gronblad, *et al:* 1958: 37; Hinode, 1971: 121; Irenee-Marie, 1952: 17; Lind, 1968: 484; Parra, 1975: 43; Teiling, 1967: 587.

Cells 90-98 µm long; 88-92 µm broad; breadth of isthmus 12 µm; thickness 24 µm. Semicell fusiform with the ends elongated, often stout, slightly down-curved spine, the contour of the apex and the spines forming part of a circle arch, sinus acute (Fig. 1a).

Local distribution: Peshawar, Leg. Sarim Nov. 2, 1976; No. 64, Swabi, Distt. Mardan, Leg. Sarim, Feb. 3, 1978, No. 288.

Geographical distribution: World wide.

Local distribution: Wah Stream No. 3 under Bridge Leg. Sarim, April 10, 1978, No. 274.

Geographical distribution: Europe, Pakistan.

3. *S. dickiei* (Ralfs) Lillier, Syn: *Staurastrum dickiei* Ralfs.

Gayos, 1975: 327; Hinode, 1971: 123; Parra, 25-30 µm long; Parra & Gonzales, 1977: 26; Teiling, 1967: 598.

Cells 25-30 µm long; breadth with spines 30-40 µm; breadth of isthmus 10-12 µm. Semicell in front view oval, often with slightly attenuated end (corners) bearing a spine of moderate size, curved downwards, chloroplast mono or tricentric (Fig. 1c).

S. dickiei is a very variable species in shape. It is characterized by the stout, curved and convergent spines. The variability depends mainly on the sliding position of the spines in close relation to the frontal shape of the semicell.

Local distribution: Tarujabba, Distt. Peshawar, Leg. Sarim, April 11, 1978, No. 280.

Geographical distribution: Europe, Chile, U.S.A., Japan, Pakistan.

4. *S. extensus* (Borge) Teiling, Syn: *Arthrodesmus incus* Ralfs.

Croasdale & Gronblad, 1964: 192; Dubois-Tylski: 1969: 320; Forster, 1969: 69; Forster, 1970: 327; Hinode, 1971: 123; Parra, 1975: 43; Parra & Gonzales, 1977: 26; Teiling, 1967: 5114.

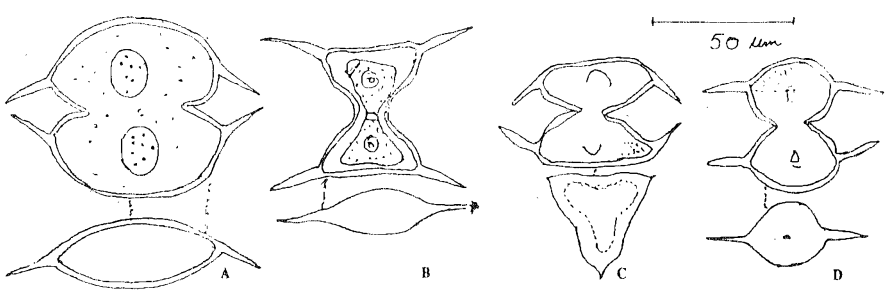

Fig. 1a. *Staurodesmus convergens* (Ehr.) Teiling., b. *S. extensus* (Børge) Teiling., c. *S. dickiei* (Ralfs) Lillier., d. *S. cornutus* (Wolle) Teiling.

Cells 17-119 µm long with spine; 17-19 µm broad with spine; breadth of isthmus 6-8 µm. Semicell subrectangular with sharply contracted basal part, forming a long incurved isthmus with rounded sinus; apex slightly concave or straight, spines of moderate length, divergent (Fig. 1b).

Local distribution: Peshawar, Leg. Sarim, Jan. 16, 1977, No. 129.

Geographical distribution: Europe, U.S.A., Japan, Pakistan, Chile.

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