

Short Communication

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SPHAEROPLEA IN PAKISTAN

M.A.F. Faridi, Ghazala Anjum and
Farrukh HussainDepartment of Botany, University of Peshawar,
Peshawar

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Sphaeroplea is the only genus of family Sphaeropleaceae. This genus has some peculiar characters like annular or reticulate parietal chloroplast, multinucleate cells, oogamy and absence of specialized oogonia. Therefore, it was placed as a separate suborder Sphaeropleineae of Ulotrichales by Fritsch [1], followed by Smith [7]. Prescott [3], however, raised it to a separate order Sphaeropleales. The genus is related to Ulotrichales in having quadri-flagellate meioplanospores like *Ulothrix* spp. According to Fritsch [1] the multinucleate cells and annular chloroplast arose by the suppression of some septa, as this is still visible in some species. Fritsch [1] believed that oogamy is also derived from Ulotrichaceae. Prescott [3] thinks that genus warrants separation from both Ulotrichales and Cladophorales and he placed it in a separate order Sphaeropleales.

Sphaeroplea is reported from all over the world except Australia. In Pakistan, *Sphaeroplea annulina* is the commonest species found all over the country, while the other two species reported in this paper seem to be rare, found once or twice only. The genus has eight taxa in all. The largest number of them has been reported from Africa. Sarma [2] during cytological studies reported 16 chromosomes for *S. annulina* and *S. annulina* var. *crassisepta*.

Sphaeroplea Ag. 1824

Filaments unbranched, free-floating; cells very long, cylindrical, multinucleate; septa thin or thick, side walls thin; chloroplast parietal, annular, or rarely reticulate; white plug-like areas common; oogamy; oospheres many in unmodified cells; antherozoids numerous, biflagellate, spindle-shaped; oospore red, spherical, elliptical or elongated, with spines, warts or winged ridges; homothallic or heterothallic.

Key to the Species

1. Oospore spiny *S. annulina*

1. Oospore winged *S. soleirolii*
1. Oospore warty *S. wilmani*

1. *S. annulina* (Roth.) Ag., 1824; *Conferva annulina* Roth., 1800; *Sphaeroplea lerleinii* Kg., 1849; *S. trevirani* Kg., 1849; *S. armenica* Kg., 1849; *S. braunii* Kg., 1849; and *S. annulina* I. multiserrate Randhawa, 1936.

Filaments 24–80 nm broad, up to 20 times as long as broad; chloroplast annular, 20–30 in number; pyrenoids 2–10 in a band; septa simple, thin or thick; oospores in 1–5 rows, spherical, with blunt conical hollow spines whose bases are connected by a regular polygonal network of delicate ridges; oospore 1–36 nm dia scarlet or red when mature; heterothallic; chromosomes 16 (pl.1, Fig. 1).

Localities. Peshawar, Akberpura, Hasan Abdal, Lahore, Multan, Quetta, Karachi (Leg, Moinuddin, Nizamuddin).

Geographical Distribution. Europe, North America, India, South Africa, North Africa, Pakistan.

2. *S. soleirolii* (Duley) Montagne ex Kg., 1849; *S. cambrica* Fritsch, 1929; and *S. annulina* var. *soleirolii* Kirchner, 1878.

Filaments 34–73 nm broad above the cross wall, 45 nm at the median region, 10–60 times as long as broad; chloroplast annular and reticulate; pyrenoids 4 or more; septa simple, relatively thin, oospore closely packed, ellipsoidal, with 8 prominent verticle wings, two wings

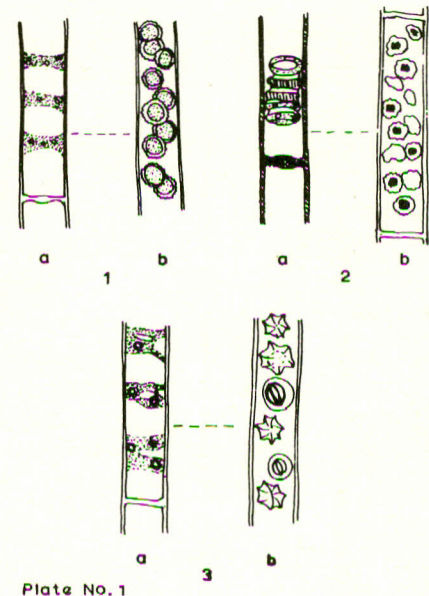


Fig. 1. *Sphaeroplea annulina* (× 650): (a) vegetative stage, (b) cell having oospores.

Fig. 2. *S. wilmani* (× 650): (a) vegetative stage, (b) cell having oospores.

Fig. 3. *S. soleirolii* (× 650): (a) vegetative stage, (b) cell having oospores.

connected over the summit, the rest stopping just short of it and often terminating in slight papillae; oospores variable in size, 27–46 nm broad, 29–60 nm long, in two or more rows (pl. 1, Fig. 3).

Localities. Kohat (Leg. Zafar Iqbal).

Geographical Distribution. Corsica, Europe, U.S.A., Marocco, Pakistan.

3. S wilmani *Fritsch & Rich*, 1929.

Filaments 24–34 nm broad, 25–27 times as long as broad; cells 24–31 nm broad at the septum, septa thick, coarse; chloroplast numerous, annular; oospore spherical; in one rarely in two rows, warty with irregular ridges, 23–27 nm thick; oogonia 27–35 nm broad; homothallic (pl. 1, Fig. 2).

Localities. Peshawar, Lahore.

Geographical Distribution. South Africa, Europe, Pakistan.

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