

CONTRIBUTION TO OEDOGONIALES (CHLOROPHYCEAE) OF GUJARAT

R. J. PATEL

Department of Biosciences, Sardar Patel University,
Vallabh Vidyanagar-388 120, Gujarat, India.

Three species of *Oedogonium*, *O. philippinense* Britt., *O. transeai* Gonz. et Jain and *O. undulatum* (Breb.) A. Br. are described in detail which are the additions to algal flora of Gujarat.

Keywords : Algae; Oedogoniales; Gujarat; Taxonomy.

Oedogoniales of Gujarat is mainly known through the work of Kamat (1962) who collected 27 taxa including a new species of *Oedocladium* and a new variety of *Bulbochaete*. Patel (1967) added one more species of *Oedogonium*, *O. prescottii*. Out of 8 nodulate or undulated species of *Oedogonium* described so far, 3 species, *O. philippinense* Britt., *O. transeai* Gonz. & Jain and *O. undulatum* (Breb.) A. Br. are dealt in the present paper which are collected for the first time from Gujarat (Gonzalves, 1981). The numbers in the brackets in habitat correspond to the bottle numbers of the material deposited in the Department of Biosciences, Sardar Patel University, Vallabh Vidyanagar.

Systematic account

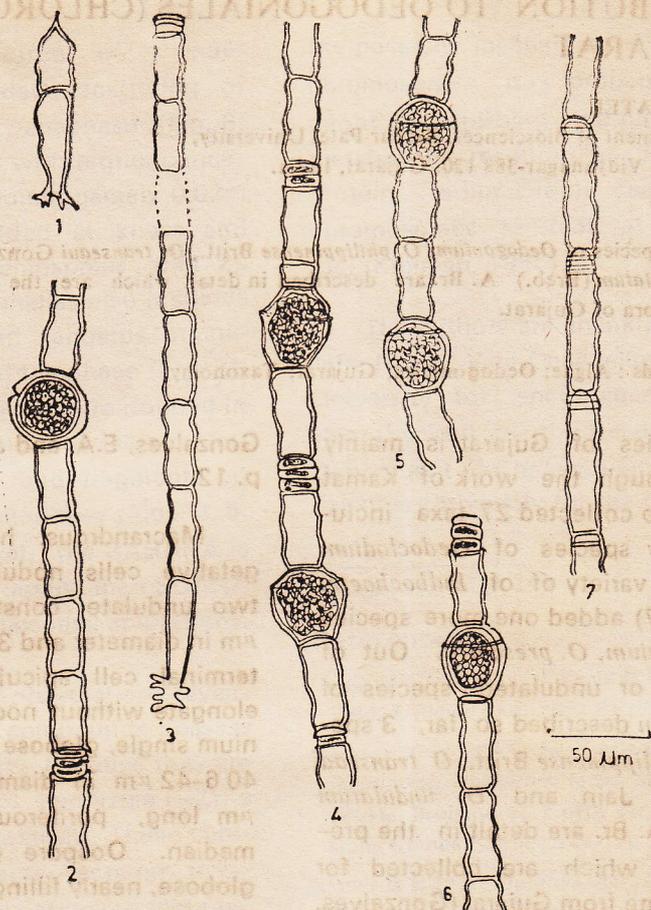
1. *Oedogonium transeai* Gonz. et Jain Figs. 1-2

Gonzalves, E.A. and Jain, S.C. 1968, p. 12.

Macrandrous, homothallic. Vegetative cells nodulate with about two undulate constrictions. 17-51 μm in diameter and 35-42 μm long; terminal cell apiculate, basal cell elongate without nodulation. Oogonium single, globose to sub-globose, 40.6-42 μm in diameter and 36-46 μm long, poriferous, pore supra-median. Oospore globose to sub-globose, nearly filling the Oogonium, 34-35.9 μm in diameter and 36-37.5 μm long, spore wall layers; antherozoid single; antheridia 17 μm in diameter and 4.6-6 μm long.

Habitat—Road-side ditches near Bhavnagar (No. 851).

O. transeai resembles in most of the characters with *O. philippinense* from which it is separated by its poriferous nature in contrast to opercu-



Figs. 1-2 *Oedogonium transeauii* Gonz. et Jain

Fig. 1 Nature of basal and terminal cells; **Fig. 2** Filament showing antheridia and oogonium with oospore.

Figs. 3-6 *Oedogonium philippinense* Britt.

Fig. 3 Nature of basal cell and terminal cells; **Fig. 4** Filament showing antheridia and oogonia; **Fig. 5** Filament with oogonia showing operculate-supra median division; **Fig. 6** Plant with antheridia and oogonium with oospore.

Fig. 7 *Oedogonium undulatum* (Breb.) Al. Br.

late in *O. philippinense*. The later has been recorded only from Maharashtra (Gonzalves and Jain, 1968).

2. *Oedogonium philippinense* Britt.
Figs. 3-6

Britton, M.E., 1948, pp. 717-718

Macrandrous, homothallic. Vegetative cells nodulose with two undulate constrictions. 17-19 μm in diameter and 34-51 μm long, terminal cell obtuse. Oogonium single, ovoid to globose to pyriform, 32-36.6 μm in diameter and 36-41.5 μm long; operculate, division suprmedian; Oospore aglobose to sub-globose completely or nearly filling the oogonium, 30-34 μm in diameter and 34-39 μm long; spore wall golden-yellowish with smooth wall layers. Antheridia hypogynous or sub-epigynous upto 7 in series; antherozoid single; antheridia 15-17 μm in diameter and 3-8 μm long.

Habitat—Road-side ditches, near Bhavnagar (No. 851).

The present species has been so far, collected from Tungar hill and its surrounding areas, Thana district, Maharashtra (Gonzalves and Jain, 1968).

3. *Oedogonium undulatum* (Breb.) A.
Br. Fig. 7

Hirn, K.E., 1900, p. 257, pl. 45, Figs. 272-275.

Vegetative cells undulate with 4-5 undulate constrictions. Cells 15-17 μm in diameter and 64-75.6 μm long.

Habitat—Road-side ditches, rare alongwith *Spirogyra* near Science College, Nadiad (No. 707).

Only sterile filaments of this rare species has been collected from Manipur and Maharashtra by Bruhl and Biswas (1926) and Kamat (1963) respectively. Gujarat material is agreeable in all respects with the nature and the dimensions of vegetative filaments given by earlier workers. (Gauthier-Lievre, 1963-64; Mrozinska-Webb 1969).

O. undulatum f. *senegalense* has been described in detail from Andhra Pradesh by Subba Raju (1968).

The author is Indebted to Prof. Ela A. Gonzalves for confirming the species.

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References

- Britton M E 1948, *Amer J. Bot.* 35 715
 Bruhl P and Biswas K. 1926, *Mem. Astat. Soc. Beng.* 8 257
 Gauthier-Lievre L 1963-64, *Nova Hedwigia* 6-7 151 545
 Gonzalves E A 1981, *Oedogoniales* I.C.A.R. New Delhi

Gonzalves E A and Jain S C 1968, *Phykos* 7 9

Hirn K E 1900, *Acta Soc. Sci. Fcm.* 27 1

Kamat N D 1962, *Hydrobiologia* 20 248

Kamat N D 1963, *Hydrobiologia* 22 209

Mrozinska-Webb T. 1969, *Flora Slodkowodno*

Polski-Chlorophyta IV. Oedogoniales.
Krakow.

Patel R J 1967, *Curr. Sci* 36 643

Subba Raju N 1968, *J. Osmania Univ.* 50 161.

Only single filament of this rare species has been collected from Madhav and Mahantpur by Bhat and Bawa (1962) and Kamat (1963) respectively. General material is agreeable in all respects with the nature and the dimensions of vegetative filaments given by earlier workers (Gauthier-Lievre, 1903-04; Mrozinska-Webb 1969).

O. madhavi M. Patil has been described in detail from Andhra Pradesh by Subba Raju (1968).

The author is indebted to Prof. E. A. Gonzalves for containing the species.

References

Bhat M E 1962, *Acta Soc. Sci. Fcm.* 27 1
Bhat M E and Bawa K. 1962, *Phykos* 7 9
Gauthier-Lievre J. 1903-04, *Ann. Mus. Hist. Nat. Paris* 10 1-113
Gonzalves E A 1968, *Phykos* 7 9
Kamat N D 1962, *Hydrobiologia* 20 248
Kamat N D 1963, *Hydrobiologia* 22 209
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Oedogonia (Chlorophyta) Vage-
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ulate, division submedian. Oospore
apophysis to sub-globose completely
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apophysis wall golden-yellowish with
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7 in series, antherozoid single, an-
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2.5 µm long.

Oedogonia (Chlorophyta) Vage-
The present species has been re-
collected from Tunder Hill and
its surrounding areas, Tana district,
Madhya Pradesh, India, by the
present author.

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