

***Dictyuchus plureovulate* sp. nov. - a new name of the genus *Dictypleiosporus* Gandhe**

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ABSTRACT: *Dictyuchus plureovulate* sp. nov. is described as revision of *nom. invalid.* of the genus *Dictypleiosporus* Gandhe *nom. nov.* This new species is described as plureovulate oogonia bearing isolate of *Dictyuchus*. The present species is compared with its nearest species *Dictyuchus sterile* and *D. monosporus*. Moreover, erecting a new genus merely on the basis of many eggs in oogonia and absence of antheridia is discarded as in Saprolegniales, the criteria for genetic identification are the formation of zoosporangia and zoospore release.

Key words: Saprolegniales, *Dictyuchus*, Aquatic fungi

The genus *Dictyuchus* belongs to family Saprolegniaceae, commonly known as water molds, was erected by Leitgeb in 1869 and described as *Dictyuchus monosporus*, a sterile for the first time. Since then comparatively a limited number of species are known. It is characterized by the peculiar zoospore and zoosporangial characters. Dick (1973) reviewed the general morphology of the Saprolegniales within the purview of zoosporangial dimensions, zoosporogenesis, zoospore characteristics, oosporogenesis, oospore structure etc.

In Saprolegniaceae, the criteria for generic identification are based on the formation of primary zoosporangia and secondary zoosporangia as well as the release of zoospores from zoosporangia (Dick, 1973; Sati and Mer, 1989). At present, there are nearly 8 species of *Dictyuchus* known from different corners of world (Dick 1973, Ratan *et al.*, 1978; Khulbe and Sati, 1983). The taxon described by Gandhe (2006) as *gen. nov. Dictypleiosporus unisexualis* appears to be very close to the species of *Dictyuchus anomalus* with true net type of zoosporangia but surely not a genus of water molds as there is no criteria of identification of water mold genera on the sexual characters i.e. presence or absence of antheridia and oogonia.

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On perusal of the characters described by Gandhe (2006), it appears that his isolate is very close to *Dictyuchus anomalus* with some extra features as presence of abundant gemmae and number of oospores per oogonium. Moreover, the isolate has not been deposited in any culture collection in living state for reexamining the material. However, we support the occurrence of an important character i.e. plureovulate oogonia. As the similar isolate has also been recorded by us 5 years long back (Fig. 1). In case of *Dictyuchus*, the earlier workers have reported mostly uniovulate oogonia.

***Dictyuchus plureovulate* sp. nov.** (Gandhe) Sati and Paliwal (Fig. 1A-D)

= *nom. nov. Dictypleiosporus unisexualis* Gandhe; *Indian Phytopath.* **59**(1): 94-97, 2006.

Colony growth very slow, very thick, radial, 2 cm colony develops within 10 days. Mycelium very stout, up to 40-45 µm, tapering at the apex upto 10.0 µm, Gemma abundant, globular, sub globular or irregular, terminal or intercalary, scattered.

Zoosporangia abundant, up to 280.0µm or more in length, Broad with terminal frequent bifurcation of the sporangia, broader than hyphal diameter, slightly swollen in the middle and gradually tapering at the tips, true net type with numerous, zoospores more

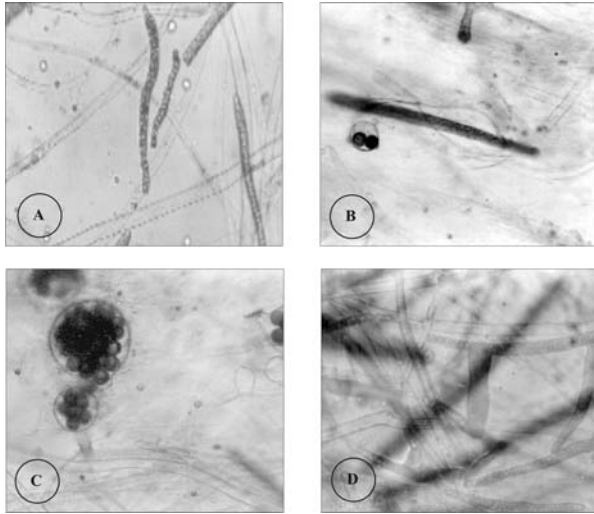


Plate 1. Photomicrographs of *Dictyuchus plureoovulate* sp. nov. (A) zoosporangia; (B) mature zoosporangium with oogonium having two oospores; (C) oogonia with plureoovulate and empty zoosporangia; (D) mature zoosporangia with gemmae.

or less circular or bean shaped 10.0µm in diameter, often released in groups or also singly through very small inconspicuous outlets, germination of zoospores within the sporangia rarely observed. Oogonia many in older cultures, very large, thick and smooth walled, 75.0 to 85.0 µm in diameter, spherical to sub spherical, some are oblong, with stout and short or long stalks; stalks typically broader in contact with oogonium and distinctly and gradually tapering at the hyphal contact, wall of oogonium. Egg one, large, filling the entire space, very frequently several eggs up to 24 or even more almost filling the entire space of the oogonium, some times present in the stout stalk, spherical, thick walled, 22.0µm in diameter. Antheridia are not observed, even in old cultures.

Dictyuchus plureoovulate sp. nov. (Gandhe) Sati and Paliwal

= *Dictypleiosporus unisexualis* (Gandhe)

Mycelis hyalinus, in semine *Cannabis sativae*, 10 diel colonium aseroid, 2 cm diam.; hyphis amplus basi ab 40-45µm. Gemmis abundans, disseminatus, gibbosus, irregularis, globus ad subglobosus, stipitatus ad sine stipitatus, terminalia ad intercalary; Zoosporagiis, frequens, plura, longa, elongata, terminalis,

cylindratis vel clavata, 220-280µm. Zoosporiis biseriatus, liberatae per lateralibus papillus et efformans eureticulis zoosporangae. Sporae in cystis 10µm diam. Oogoniis plura, stipitibus, gracilibus brevibus longisve insidentia, vulgo ad latera hypharum; sphaericae vel subsphaericae; 75-85.0µm dia., piriform, oblogatus; tunica oogoniorum nullis punctulis notata et omni levi. oosporiis singulae vel plura, 1-16 vel ultra, laevis, sphaericae, 20µm dia.; antheridiis nullus.

Habitat: Collected from Kosi river water at Kwarab (Almora), Kumaun Himalaya (1000 m asl) during August 2001 (KUMS # 3669, HCIO No. 48953); Type.

The occurrence of plureoovulate oogonia appears to be most unique character and therefore this isolate must be renamed as *Dictyuchus plureoovulate* sp. nov. instead of erecting invalid new genus *Dictypleiosporus* with species name *unisexualis* as in *Dictyuchus anomalus* and *Dictyuchus missouriensis* only oogonia are present. To accommodate this new species a simplified key for the identification can be modified as follows:

Key to the species of *Dictyuchus*:

- Sex organ absent
 - ***Dictyuchus sterile***
- sex organ present A
 - A₁ Antheridia present B
 - A₂ Antheridia absent C
 - B₁ Antheridia rare, diclinous
 - ***D. lucknowensis***
 - B₂ Antheridia abundant ..E
 - C₁ Oogonia upto 80 µm, 1-28 oospores per oogonium, gemmae present
 - ***D. plureoovulate***
 - C₂ Single oospore per oogonium, gamma absent
 -D
 - D₁ Oogonia 28-43.8 µm, oospores 18-32 µm, apleurotic
 - ***D. anomalus***
 - D₂ Oogonia 27-34 µm, oospore 20-27 µm
 - ***D. missouriensis***
 - E₁ Antheridia strictly diclinous F

- E2 Antheridia monoclinalous, diclinous or androgynous ***D. pseudodictyon***
- F1 Antheridia often enwrapped the oogonia G
- F2 Antheridia not enwrapped the oogonia ***D. pisci***
- G1 Oospore single, centric ***D. monosporus***
- G2 Oospore single eccentric ***D. carpophorus***

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