# NOTES ON TAXONOMY OF *DAEDALEA MICROZONA* LEV.

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*DAEDALEA FLAVIDA* Lév., a common polypore fungus in India with variable hymenial surface ranging from poroid to daedaloid to lenzitoid was often confused with *Daedalea microzona* Lév., with thin context and regular hymenial surface. Based on morphological studies Ryvarden and Johansen[1] concluded the two species as synonymous while Bakshi[2] regarded *D. microzona* as a form of *D. flavida*.

To confirm whether the two species are synonymous or they belong to separate taxa, detailed anatomical and cultural studies of *D. microzona* were made and these observations were compared with those on *D. flavida* described recently by Roy and Mitra[3]. Conspecificity tests with monosporus cultures of both the species were also carried out. Results obtained are presented here.

Fresh collections of these two fungi have been made from different parts of West Bengal. Monosporus and polysporus cultures of each were also established. Cultural characters of *D. microzona* were studied from polysporus cultures following the methods of Nobles[4,5]. Anatomical details of the species were studied from fresh basidiomes. Conspecificity tests were done by pairing[4] monosporus cultures of each species in all possible combinations.

Basidiome : Pileate, sessile, pileus fan shaped to semicircular, usually solitary, occasionally fused laterally, 3–17 × 3.5–10 × 0.1–1.5 cm; pileus surface white to pale brown, faintly zonate, velvety to glabrous, thinly crustose towards the base in some basidiome; margin thin; context coriaceous, white to cream colored, 0.5–1.0 mm thick; hymenial surface white to cream colored, pores regular, pore tubes up to 1.4 cm long.

Habitat : Log of *Shorea robusta* Gaertn. f.

Rot : Associated with white rot.

Microscopic Features : Hyphal system trimitic; generative hyphae hyaline, with clamp connections, thin to slightly thick walled, 1.2–4.5 $\mu$m, a few pale brown, thick walled, occasionally found among the cuticular cells; skeletal hyphae subhyaline, thick walled to solid, unbranched or apically branched, 1.3–5 $\mu$m; binding hyphae hyaline, thick walled, with long tapering branches, some are closely branched with short branches, 1.2–2.8 $\mu$m; cuticular cells occurring occasionally in the crustose part of the pileus surface; basidia clavate, thin walled, tetrasterigmatic, 18.5–26 × 2.6–4 $\mu$m; basidiospores hyaline, thin walled, short cylindric, 4.5–5.8 × 1.6–2.2 $\mu$m.

Culture : Growth rapid, covering the plate in two weeks. Advancing zone even, hyaline, appressed. Mycelium mostly white, the newer growth floccose woolly to floccose cottony, with faint zonations, soon becoming subfelty, chamois like and somewhat powdery in appearance; reverse bleached; oxidase reaction positive[6].

Microscopic Features : Advancing zone – hyphae hyaline, thin walled, with clamp connections, 1.3–3.5 $\mu$m. Aerial mycelium – (i) hyphae as in the advancing zone, slightly thick walled, encrusted; (ii) fibre hyphae hyaline, both branched and unbranched, 1.5–4.4 $\mu$m; (iii) cuticular cells hyaline, thin to slightly thick walled; (iv) oidia abundant, hyaline, thin walled, ellipsoid, 2.5–6.5 × 1.5–4 $\mu$m; (v) chlamydospores both terminal and intercalary, subglobose to ellipsoid, 7–10.5 × 5.2–8.5 $\mu$m.

Sexuality : Tetrapolar heterothallic[6].

Conspecificity Test : Result of conspecificity test.

**Table 1** *Pairings of monosporus mycelium from D. flavida and D. microzona each '+' sign indicates the formation of clamp connections.*

| Monosporus cultures of *D. microzona* | Monosporus cultures of *D. flavida* | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 1 | + | + | + | + |
| 2 | + | + | + | + |
| 3 | + | + | + | + |
| 4 | + | + | + | + |

The observations on the morphological, anatomical and cultural characteristics of *D. microzona* agree with those of *D. flavida* given by Roy and Mitra[3] in almost all respects except some differences. The basidiospore size of *D. microzana* is smaller than that of *D. flavida*. But such variation may occur within the same specimen[7]. In *D. microzona* there occur binding hyphae, closely branched with short branches in addition to long type. Former kind of binding hyphae are not reported from *D. flavida*. Moreover, the cuticular cells formed in culture of *D. microzona* are thin to slightly

thick walled, whereas in *D. flavida*, they are highly thick walled. In spite of these differences the two species are similar in many other important characters and the formation of clamp connections in every mating of conspecificity tests proves conclusively that the two species are synonymous. The differences of characters between the so called two species could be regarded as the range of variation within the same species.

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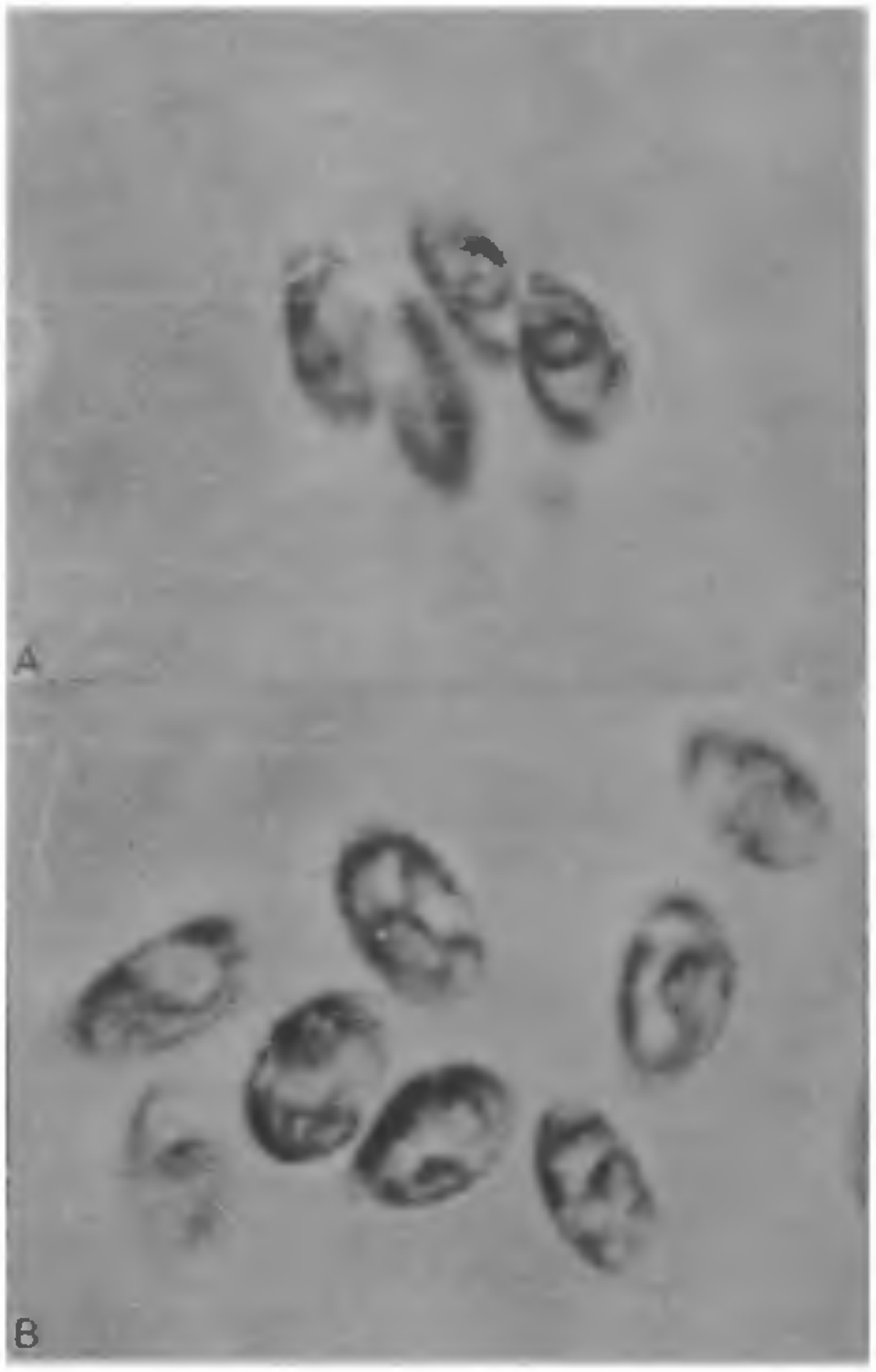


**Figure 1.A** Colony of *Scendesmus bijugatus* (Turpin) Kuetz. × 3200, **B.** Unicells of the same.

## MORPHOLOGICAL MUTANT OF *SCENEDESMUS BIJUGATUS* (TURP.) KUETZ.

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UNICELL formation in the genus *Scenedesmus* has been reported[2–8]. This stage is recorded as a morphological variation of the genus. Cultures of *Scenedesmus bijugatus* (Turp.) Kuetz. were subjected to varying temperature conditions of 33–35°C and 36–40°C. At 33–35°C cultures were kept under continuous illumination, with a light intensity of 2.7 K Lux, while another with an alternate light 2.6 K Lux for 8 h/d. At 36–40°C in both the sets, cultures received the light intensity of 2.7 K lux. Observations were recorded at 5 day interval for 5 weeks. On 15th day, (table 1) unicells (figure 1B) appeared in the cultures kept under continuous illumination at 36–40°C. Such cells did not appear in the set kept at alternate light and dark periods. Unicells appeared after 25 days under continuous illumination at 33–35°C. The unicells did not appear in the parallel set in alternate light and dark condition at 33–35°C. According to Trainor[3], Trainor and Hilton[4], cultures placed under a wide range of temperature and in different liquid media at diurnal illumination favoured the formation of unicells. We found that after 5 weeks, the entire population was converted into unicells. These cultures were subcultured and subjected to optimum culture conditions. Even after two years, the cultures did not revert to parental form. Cultures of unicells along with cultures of *S. bijugatus* are being maintained in alternate light and dark period of 8/16 hr at 33–35° C which are the optimum conditions for *S. bijugatus*.

Trainor[5, 7] found that addition of 1.5% yeast extract, or ammonium ions and buffered at pH 8.5