

## An unusual species of *Wardomyces* (Hyphomycetes)\*

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*Wardomyces moseri*, isolated from a dead petiole of *Mauritia minor* in Colombia, is described as a new species. It differs from other species of the genus by easily liberated conidia. Its classification is discussed.

Keywords: Hyphomycetes, taxonomy, *Wardomyces*, tropics.

Among isolates derived from plant material collected in Colombia in 1980 (see Veerkamp & Gams, 1983), a hyphomycete was preserved for several years in the CBS collection as *Wardomycopsis* sp. It was found in a Petri dish during the isolation of microfungi from plant litter collected by the author in a moist tropical biotope and it differed considerably from the type species of this genus, *W. inopinata* Udagawa & Furuya (1978), by the lack of annellides and non-catenate, though easily seceding slimy conidia. It strongly resembled *Ticogloea* G. Weber & al. (1994) but, upon closer examination, was found to differ in the mode of conidial germination. This fungus is therefore placed in *Wardomyces* though it differs from all known species by easily liberated conidia.

I dedicate this species to my esteemed teacher and former supervisor Meinhard Moser, Innsbruck, on the occasion of his 70th birthday.

The fungus was grown on 2% malt extract agar (MEA), oatmeal agar (OA), cornmeal agar (CMA), and potato-carrot agar (PCA). Cultures grown for 6 and 14 days on PCA were prepared for SEM analysis according to Samson & al. (1979).

### *Wardomyces moseri* W Gams, sp. nov. – Figs 1, 2.

Coloniae 30–35 mm diam. post 10 dies 25 C, optime 21–27 C crescentes. Massa conidialis radiatim aggregata, partim superficialis, partim submersa. Cellulae conidiogenaе ad hyphas radiantēs dense aggregatae, sessiles seu ramulis singulis supportatae, 3.5–5.5 µm longae, e ventro 2–2.5(–3) µm lato et uno vel compluribus

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\* This paper is dedicated to Professor M. Moser on the occasion of his seventieth birthday.

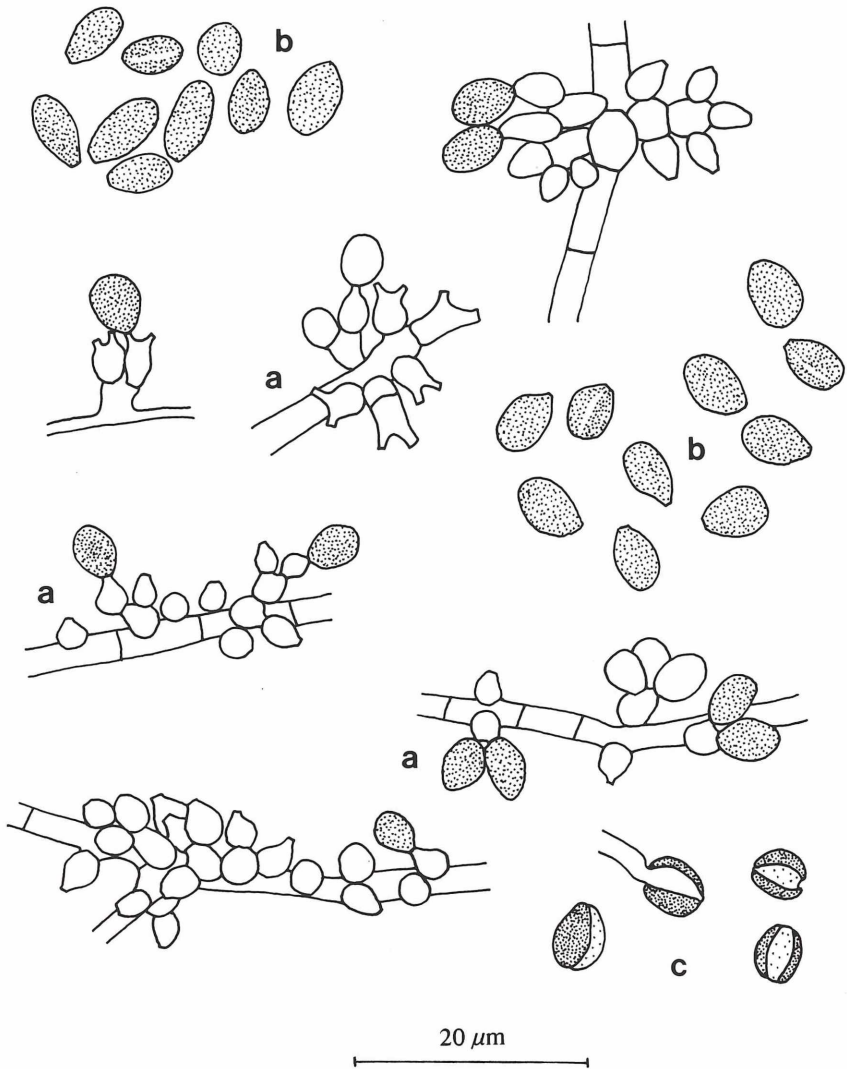


Fig. 1. – *Wardomyces moseri*. – a. sporodochium-like fructifications. – b. conidia. – c. germinating conidia.

collulis 0.6–1.0 µm latis constantes. Conidia in massa mucida aggregata, ovoidea, ad hilum basilare truncata, levia, cito fusciscentia, nonnulla fissuram germinationis praebentia, 10–14 × 3–4.5 µm.

Holotypus colonia exsiccata, isolata e rachide *Mauritiae minoris* prope Villavicencio in Columbia, in COL, viva CBS 164.80.

Colonies rather fast-growing, reaching 30–35 mm diam in 10 days, daily radial increment appr. 1.6 mm at 25 C on MEA,

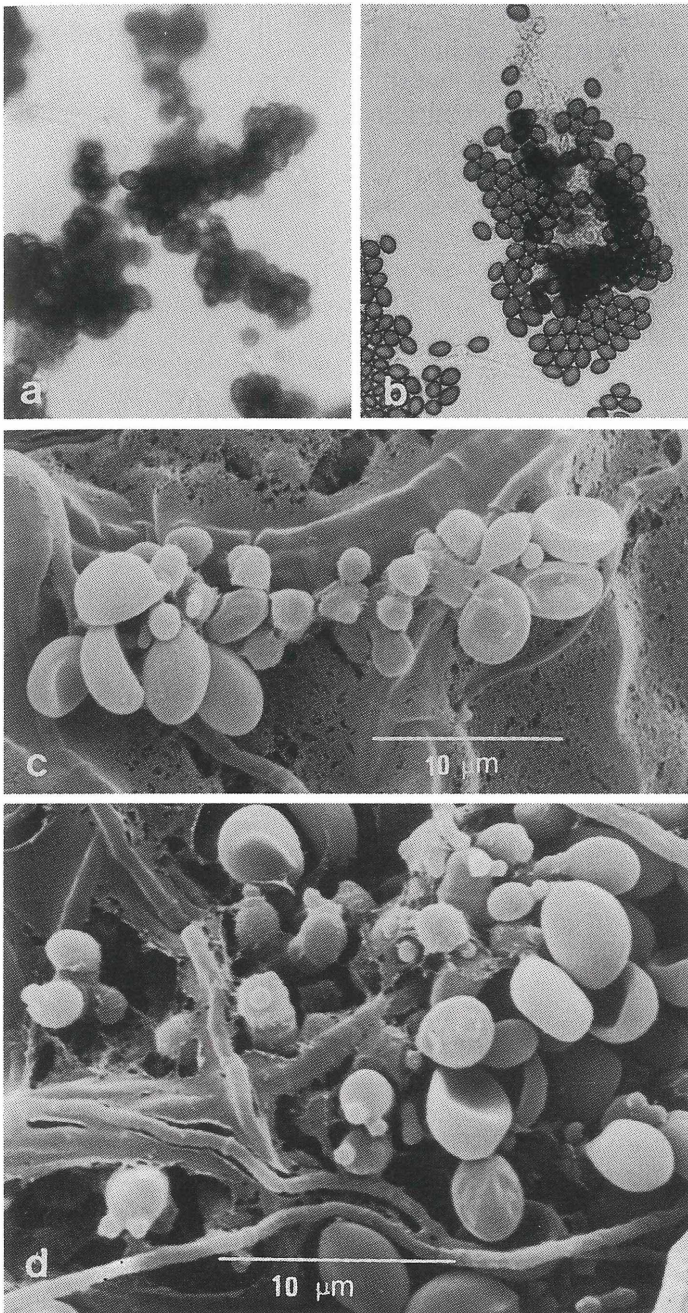


Fig. 2. - *Wardomyces moseri*. - a, b. Direct view of sporulation in undisturbed Petri dish culture, light micrograph at low power. - c, d. Sporulation in an 6-day-old PCA culture; polyblastic conidiogenous cells visible in d; SEM.

temperature optimum 21–27 C, minimum about 8 C, maximum about 35 C. Sporulation optimal on PCA, good on OA or CMA after about 5 days and poor on MEA, forming blackish, radially elongated, slimy conidial masses, partly superficial, partly submerged in the agar. – Conidiogenous apparatus often densely aggregated along radial hyphae, more or less hyaline, conidiogenous cells arising either directly from creeping vegetative hyphae or supported by short swollen stalk cells,  $2-3 \times 1.5-2.5 \mu\text{m}$ . – Conidiogenesis polyblastic, conidiogenous cells flask-shaped, about  $3.5-5.5 \mu\text{m}$  long, consisting of a swollen venter,  $2-2.5(-3) \mu\text{m}$  diam. and one or two (three) narrow conidiogenous necks,  $0.6-1.0 \mu\text{m}$  wide. – Conidia forming irregular slimy masses, ovoid (flattened at the point of attachment), smooth-walled, soon becoming rather dark brown, some showing an inconspicuous longitudinal germ slit,  $10-14 \times 3-4.5 \mu\text{m}$ . During conidial germination the germ split bursts widely open.

Material examined COLOMBIA: Dep. Meta, 35 km East of Villavicencio, on a river bank in the savannah area, isolated from dead petiole of the palm *Mauritia minor*, CBS 164.80.

Sporulation of this fungus is sporodochium-like, although the conidiogenous and stalk cells are not very firmly aggregated in several orders. Only more or less dense clusters of conidiophores arise laterally along trailing hyphae, either submerged in the agar or on its surface.

Conidiogenesis is polyblastic. Sympodial proliferation of the conidiogenous cells is observed quite frequently. Although the conidia are easily liberated and aggregate in slimy masses, no sign of multiple conidium formation through one opening could be observed in slide cultures grown on PCA in a device similar to that described by Cole & Kendrick (1968). No periclinal wall thickening characteristic of phialidic conidiogenesis is visible in light microscopy, although the openings appear rather wide in SEM (Fig. 2d). No trace of an annellation could be observed in SEM either. The conidiogenous cells are very irregular in SEM, apparently due to slime deposition.

*Wardomyopsis* Udagawa & Furuya is a genus analogous to *Wardomyces* Brooks & Hansford (incl. *Gamsia* Morelet) which has solitary pigmented blastoconidia provided with a germ slit and sometimes forming additional hyaline annelloconidia, which otherwise would fit *Scopulariopsis* Bain. *Wardomyopsis*, however, differs from the present fungus by the formation of pronounced annellides and catenate, dry, dark conidia with conspicuous germ slits.

The case of *Wardomyopsis* is somehow comparable to that of the *Chalara* anamorph of *Ceratocystis paradoxa* (Dade) C. Moreau, where

the pigmented phialoconidia also show a germ slit, while in some other species formerly classified in *Chalaropsis* Peyronel, but not in all, the germ slit occurs only on solitary blastoconidia (Nag Raj & Kendrick, 1976). Molecular studies by Blackwell & Spatafora (1992) and Spatafora & Blackwell (1994) have shown that the teleomorph genera *Ceratocystis* and *Microascus* are more closely related to each other than to other ascomycete genera with beaked perithecia such as *Ophiostoma*. Another genus having conidia with a germ slit is *Conioscypha* Höhnelt, but this has a unique kind of percurrent conidiogenesis (Shearer, 1973; Shearer & Motta, 1973).

*Ticogloea guttulata*, isolated from roots of *Ticodendron incognitum* in Costa Rica and roots of *Tilia platyphyllos* in Hamburg, Germany, living cultures CBS 604.92 and 689.92, has a comparable sporodochium-like sporulation, but it differs from *W. moseri* by more sepia-brown colonies, and smaller conidia which are borne in greater numbers from a conidiogenous cell and are more broadly truncate at the base (Weber & al., 1994). After finding germ slits in *W. moseri*, the conidia of *T. guttulata* were reexamined and found to lack them altogether. Even upon germination, no trace of a shell-like splitting of the conidia was observed while this is quite evident in *W. moseri* (Fig. 1c). Therefore the new species cannot be placed in *Ticogloea*.

Although *W. moseri* differs from other species of *Wardomyces* (cf. Dickinson, 1964; Hennebert, 1968) by its narrowly attached and easily seceding conidia which tend to form slimy masses, I prefer to classify the new species in this genus rather than to describe another new genus, because of the aggregated production of one-celled pigmented conidia which are produced on polyblastic conidiogenous cells and are provided with a germ slit. For the *Wardomyces* anamorph of *Microascus giganteus* Malloch (1970), *Wardomycopsis inopinata* Udagawa & Furuya, and the *Wardomycopsis* anamorph of *Microascus singularis* (Sacc.) Malloch & Cain, the connections with *Microascus* teleomorphs have been proven. The features observed in *W. moseri* also suggest an affinity with the Microascaceae, which cannot be ascertained for *Ticogloea*.

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