

A new species of *Cyphellophora*

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Introduction

In the course of a study on fungal endobionts of wheat and barley roots an unknown phialidic, dematiaceous hyphomycete was encountered. Its phialides arose from little-differentiated, brown hyphae, and the conidia were long, curved, and multi-septate. The species was thought to be close to *Phialophora* Medlar, but different by the septation of its conidia. Neither could it be classified in *Fusarium* Link:Fr., since this genus contains species with spreading, mostly pinkish colonies and hyaline hyphae. *Annelodontomyces* Mats. (Matsushima 1985) is also similar, but has an annellidic conidiogenesis.

A genus for dematiaceous hyphomycetes with septate conidia arising from phialides is *Cyphellophora* de Vries. Thus far only two, probably human pathogenic, species have been described (De Vries 1962, De Vries et al. 1986). Our species is new, and is described as follows:

Cyphellophora vermispora Walz et de Hoog, sp.nov. (Fig. 1)

Coloniae in agaro farina avenae confecto ad 27 mm diam post unum mensem, fere leves in medio, in zona exteriori mycelio murino, farinoso vel coacto praeditae, modice zonatae; margo discreta, regularis; reversum olivaceo-atrum. Hyphae leves et fere tenuitunicatae, griseobrunneae, 1.5–2.0 µm latae. Phialides ampulliformes vel lageniformes, orthotropicae ex hyphis oriundae vel nonnullae in conidiophoris fere penicillatis aggregatae, hyalinae, tenuitunicatae, 5.5–6.5 µm longae, in medio ad 2.0–3.5 µm latae, nonnumquam ad 8.5–12.0 µm elongatae; collare infundibuliforme, hyalinum, ad basim 1.0–1.3 µm latum, sursum ad 2.5–3.0 µm dilatatum; collaria nonnumquam sessilia in cellulis intercalaribus adsunt. Conidia hyalina, levia et tenuitunicata, vermiformia, plerumque curvata, (0–)4(–8)-septata (cellulae distales intermediis longiores), 30–55 µm longa, 1.2–1.5 µm lata, ad basim rotundata, sursum acuminata.

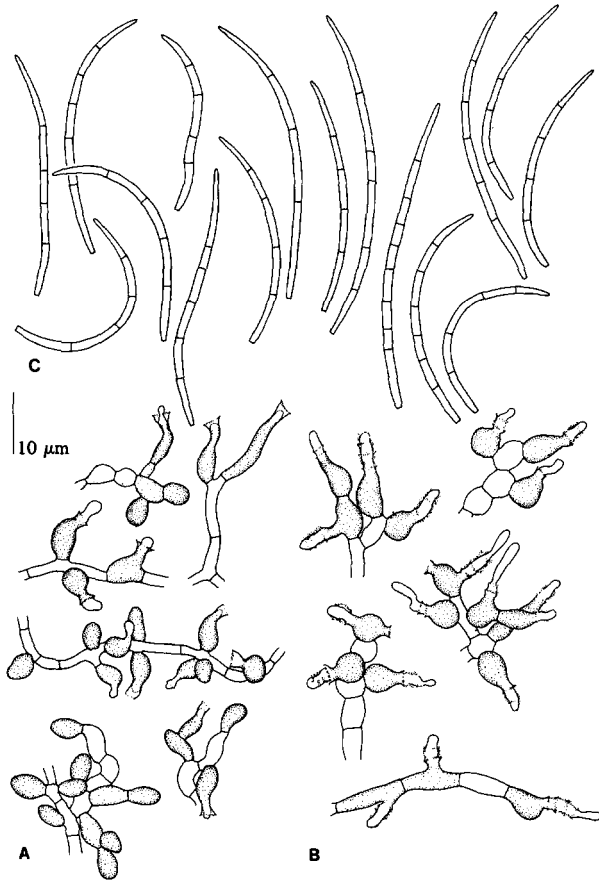


Fig. 1. *Cyphellophora vermisporea*, CBS 228.86 on oatmeal agar. A. Young conidiogenous cells; B. Conidiogenous cells from 1-month-old culture; C. Conidia.

Holotypus CBS 228.86 (exsiccatum), isolatus e radice Triticum aestivi prope Monheim in Germania, Nov. 1985, A. Walz.

Colonies on oatmeal agar after one month attaining a diameter of 27 mm, flat, nearly smooth at the centre, sometimes with small hyphal fascicles at the point of inoculation, olivaceous black, with mouse grey, farinose to felty aerial mycelium in the outer zone, with flat radial areas and slight concentric zonation; in a later stage becoming smooth, olivaceous black, particularly at the centre; margin straight and sharp; reverse evenly olivaceous black. Hyphae smooth and moderately thin-walled, dull brown 1.5–2.0 µm, with profuse septation at irregular distances. Phialides discrete, pale olivaceous brown, arising at right angles from undifferentiated hyphae, solitary or in small groups, occasionally with few in a more or less penicillate arrangement, hyaline, thin-walled, ampulliform to flask-shaped, 5.5–6.5 µm long, widest 2.0–3.5 µm at or below the middle;

sometimes elongate, $8.5\text{--}12.0 \times 1.5\text{--}2.0 \mu\text{m}$; collarette funnel-shaped, hyaline, $1.0\text{--}1.3 \mu\text{m}$ wide at the base and $2.5\text{--}3.0 \mu\text{m}$ at the tip, or cylindrical, $2.5 \mu\text{m}$ long, deteriorating in a later stage; collarettes occasionally sessile on intercalary hyphal cells. Conidia hyaline, smooth- and thin-walled, vermiform, mostly curved, occasionally nearly straight or somewhat flexuose, $30\text{--}55 \mu\text{m}$ long, $1.2\text{--}1.5 \mu\text{m}$ wide throughout, with truncate basis and acuminate tip, initially continuous, later 4(–8)-septate, basal and terminal cells consistently longer than the intermediate cells. Locally clusters of soft, pale olivaceous, pseudoparenchymatous, subglobose to ellipsoidal sclerotia about $70\text{--}100 \mu\text{m}$ long are present.

Material examined

CBS 228.86, type culture, ex root *Triticum aestivum*, from wheat field, Monheim, FRG, A. Walz; CBS 227.86, ex root *Hordeum vulgare* grown in sterilized soil in glasshouse, Monheim, FRG, A. Walz.

Discussion

CBS 228.86 was isolated from a root tip of a 2-week-old wheat plant, grown from untreated seeds in a field plot. CBS 227.86 came from a root of a barley plant grown in a glasshouse for 4 weeks in agricultural soil. Roots were washed in sterilized water with ultrasonar equipment. 1 mm Long sections were then placed onto CMC agar and incubated under near UV light at 17°C for 10 days.

The species is easily distinguished from the earlier described *Cyphellophora* species by its long, vermiform, narrow conidia and mostly flask-shaped phialides. In a later stage a hyaline outgrowth often protrudes through the collarette on which several conidia are formed (Fig. 1b). It then vaguely resembles *Mirandina breviphora* Mats., which has similar, vermiform conidia, but marked, short-cylindrical denticles (De Hoog 1985). Also some species of *Microdochium* Syd. *sensu* von Arx (1981) are similar, such as *M. fusarioides* Harris (1985). However, the outgrowth in our species is an annellated zone rather than a sympodial rachid, since most conidia seem to burst subsequently through a mother cell wall, leaving inconspicuous, consecutive frills. The frills later deteriorate to form an irregular mucilaginous layer (Fig. 1c). *Mirandina* and *Microdochium* are generally taken as genera which include species with sympodial conidiogenesis. *Microdochium panattonianum* (Berl.) Sutton et al. (Galea et al. 1986) is an exception, having regularly annellated zones; this indicates that the genera are segregated on the basis of characters of conidiogenesis only with difficulty. The marked collarettes invariably formed in young stages of the present species is taken as a main criterion for its classification in *Cyphellophora*, while the possible later development with inconspicuous annellated zones is regarded as less significant.

The genus *Annelodontimyces* lacks collarettes, the conidia being produced from sessile annellated zones.

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