

CYLCOGONE, A NEW GENUS OF HYPHOMYCETES WITH UNUSUAL CONIDIUM ONTOGENY

J. H. VAN EMDEN and JOHANNA W. VEENBAAS-RIJKS

Instituut voor Plantenziektenkundig Onderzoek, Wageningen

Cylicogone Van Emden & Veenbaas-Rijks, *gen. nov.*

Hyphomycetes, Dematiaceae.

Mycelium ex hyphis ramosis, septatis, hyalinis compositum. Cellulae conidiogenae enteroblasticae, intercalares, laterales vel terminales. Conidia pigmentata, continua, in structuris poculiformibus nascentia.

Species typica: *Cylicogone regenerans*.

Etym.: gr. kylix = beaker.

Hyphomycetes, Dematiaceae. Mycelium composed of branched, septate, hyaline hyphae. Conidiogenous cells enteroblastic, intercalary, lateral or terminal. Conidia pigmented, one-celled, formed in beakerlike structures.

Type species: *Cylicogone regenerans*.

Cylicogone regenerans Van Emden & Veenbaas-Rijks, *spec. nov.*

Coloniae in agaro malti lentissime crescentes, aetate trium hebdomadum vix 15 mm diametro, olivaceo-griseae, pulverulentae, mycelio aereo parco, margine submerso hyalino angusto praeditae; sporulatio copiosa. Mycelium ex hyphis hyalinis, ramosis, septatis, levibus circa 2 μ m crassis compositum. Cellulae conidiogenae enteroblasticae, intercalares, laterales vel terminales. Conidia in structuris poculiformibus nascentia, nonnunquam in catenis brevibus adhaerentia, continua, levia, ovoidea vel elliptica, basi truncata, ab initio subhyalina, tenuitunicata, deinde brunnea, crassitunicata, basi lata, tenua in medio, ubi germinant, (7.5-) 10-11.5 (-12.5) \times (4.5-) 5-6 (-7) μ m.

Habitat in terra.

Typus in herb. et cult. CBS 436.70

Colonies on malt agar slowly growing, hardly attaining a diameter of 15 mm in three weeks at 20°C, olivaceous grey, powdery, mainly composed of submerged, hyaline hyphae forming a sparse but richly sporulating aerial mycelium. Hyphae hyaline, smooth, regularly septate, about 2 μ m wide. Conidiogenous cells enteroblastic, intercalary in aerial hyphae or terminal on short branches consisting of one or few elements. Conidia produced in beakerlike structures, often adhering in short chains, one-celled, smooth, ovoid or ellipsoidal, subhyaline when young, soon becoming brown and thick-walled, with a truncate base provided with a central pore, (7.5-) 10-11.5 (-12.5) \times (4.5-) 5-6 (-7) μ m.

Other material studied:

CBS 602.70, CBS 603.70, CBS 604.70, all from arable soil in Oostelijk Flevoland, The Netherlands.

The fungus diverges from all other genera of Imperfect Fungi described up to now by its mode of conidium development, which takes place as follows.

A mycelial cell forms a lateral swelling, which is soon separated by a cross-wall (*fig. 1, a and b*). This cell enlarges to the size and shape of a conidium (*fig. 1, c*). The contents of the cell are surrounded by a separate inner wall, to form an endoconidium, which is released by dissolving or disrupting of the upper part of the outer wall. A beakerlike structure attached to the conidiogenous cell remains.

Subsequent conidia develop in basipetal succession on the bottom of the beaker, gradually filling it up and protruding from it before they in turn are released (*fig. 1e and plate I*).

Sometimes the top of the conidium in statu nascendi is in close contact with the base of the previous conidium. Sometimes, however, e.g. in a micro-culture chamber, there is no contact between subsequent conidia, and under such circumstances conidial chains are not found. If an intact petri dish culture is studied microscopically, short chains of conidia are regularly seen.

Mature conidia show a thickened wall at the truncate base in which a distinct pore can be observed. Germination of conidia usually takes place through this basal pore. In young, still rather thin-walled conidia germination tubes may emerge from a non-predetermined place in the cell wall (*fig. 2*).

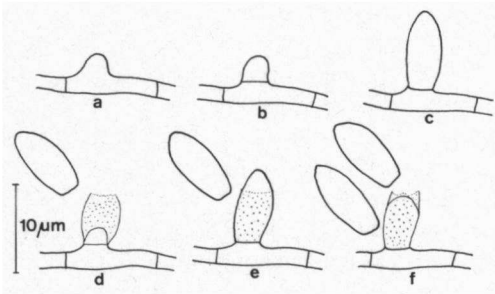


Fig. 1. a-f: Stages in development of conidium.

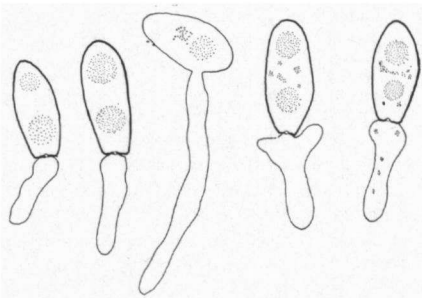


Fig. 2. Germinating conidia (see text)

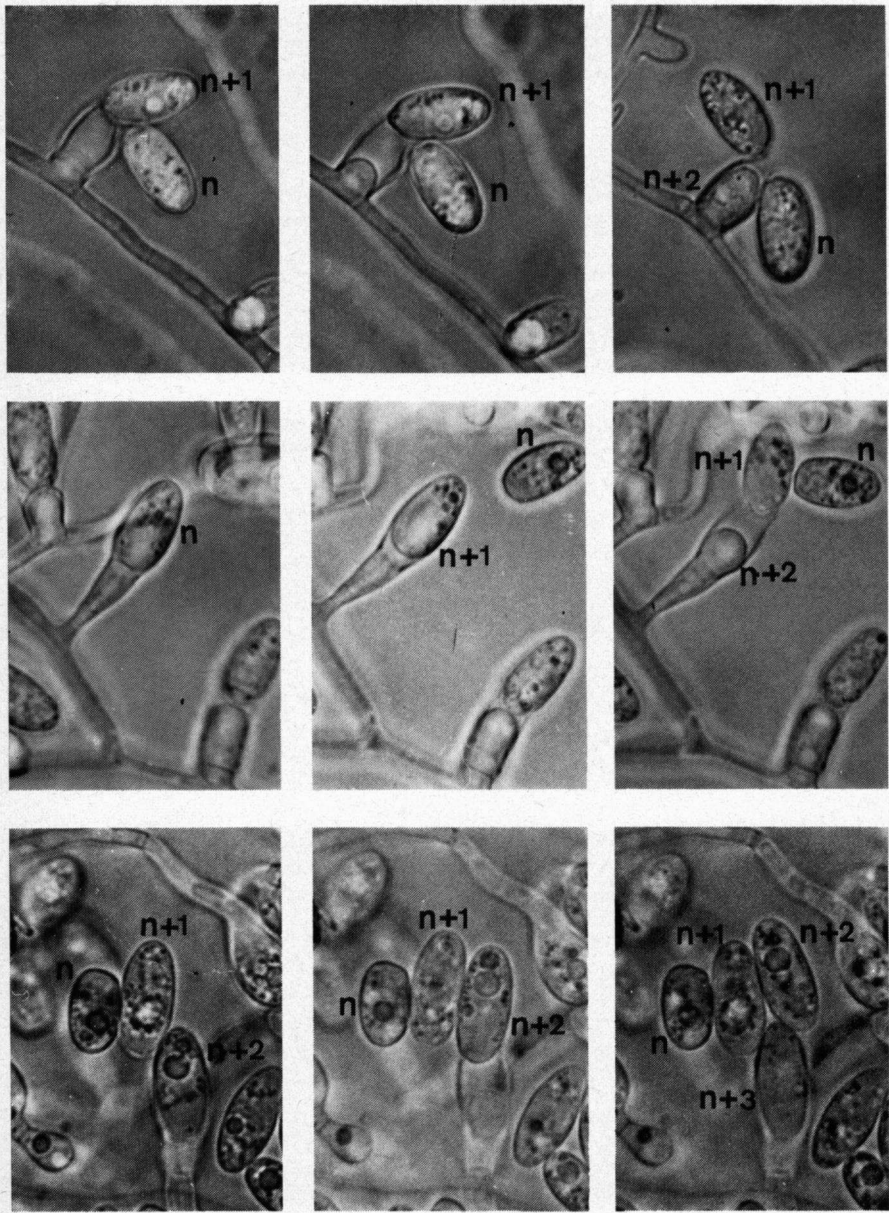


Plate I. Three series of time-lapse photomicrographs showing conidium development. In each the oldest conidium is marked n , the next $n+1$, etc. $\times 1480$.

The fungus grows well, although slowly, on potato dextrose, malt, oatmeal, hay infusion, and soil extract agar. On Czapek-Dox agar growth is virtually nil, although conidia germinate readily on this medium.

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