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A NEW NAME FOR PHIALOCEPHALA ILLINI

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Two genera remain in the Leptographium complex (Kendrick, 1961; Kendrick, 1962) now that Verticicladiella Hughes has been reduced to synonymy with Leptographium Lagerberg and Melin (Wingfield, 1985). These two genera, Leptographium and Phialocephala Kendrick are distinguished by percurrent as well as sympodial proliferation of conidiogenous cells in Leptographium compared with conidia produced from distinct phialides in Phialocephala. Conidium development in Phialocephala spp. is, however, variable and the genus includes species producing conidia either by replacement or ring wall building (Wingfield, 1985). In a more detailed study of conidium development in Phialocephala spp. (Wingfield, Van Wyk and Wingfield, 1987) some unusual features of P. illini Crane, inconsistent with features of other Phialocephala spp. were noticed. These unusual features and a more appropriate generic placement for P. illini are considered here.

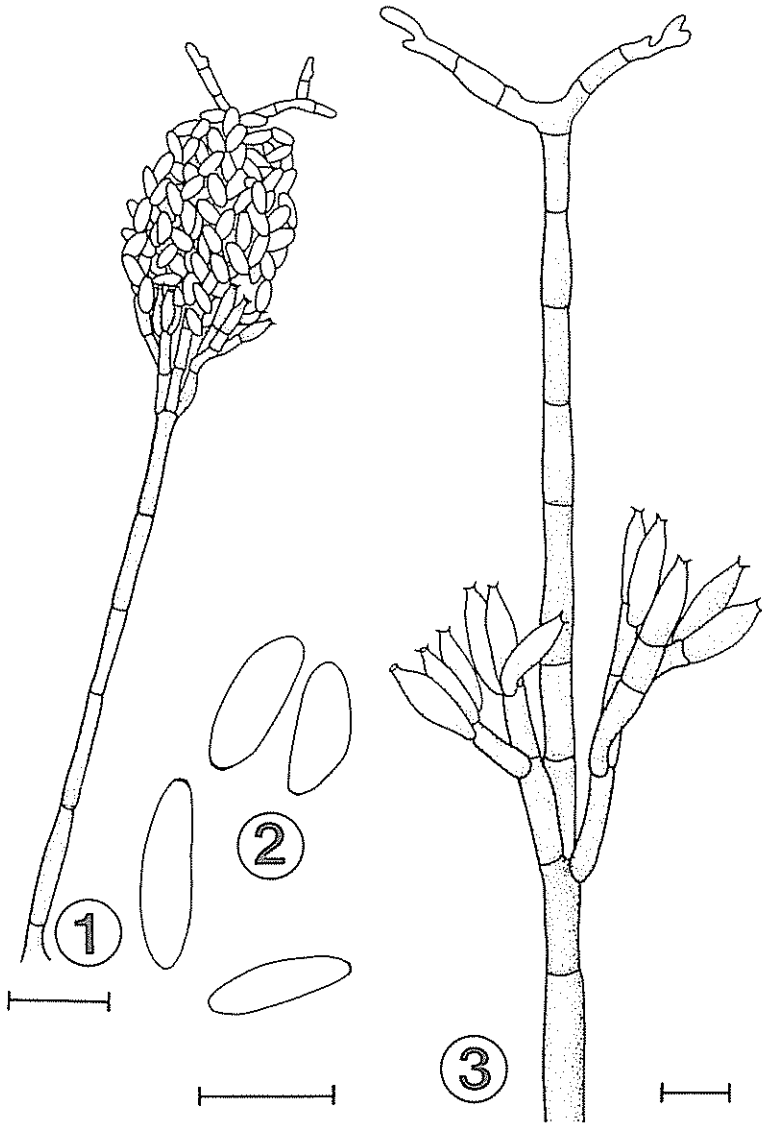
Crane (1971) described P. illini from decayed wood of Taxodium distichum (L.) Richard in Illinois. This species was distinguished from other Phialocephala spp. by a conidiogenous apparatus, laterally oriented on the upper third of an "occasionally branched and once or twice dichotomously forked" stipe (Figs. 1-3). All other Phialocephala spp. have conidiogenous cells terminal on the conidiophore and this necessitated an amendment of the generic circumscription of Phialocephala to accommodate P. illini (Crane, 1971).

In addition to the peculiar stipe, the conidia of P. illini, are unusually large among apical wall building Phialocephala spp. (Table 1). These features have led to a consideration of other genera in which

TABLE 1. Comparison of conidial dimensions in species of Chaetopsina and apical wall building species of Phialocephala.

Species	Conidial length	Conidial width	Source
<u>Chaetopsina catenulata</u> Samuels	12.0 - 16.0 μ m	2.5 - 3.5 μ m	Kirk & Sutton (1985)
<u>C. fulva</u> Rambelli	8.0 - 12.0 μ m	1.5 μ m	" "
<u>C. penicillata</u> Samuels	9.5 - 23.0 μ m	6.0 - 10.5 μ m	" "
<u>C. polyblastia</u> Samuels	17.0 - 25.5 μ m	4.0 - 5.5 μ m	" "
<u>C. splendida</u> Sutton & Hodges	9.5 - 12.0 μ m	1.5 μ m	" "
<u>Phialocephala dimorphospora</u> Kendrick	3.6 - 5.4 μ m (First conidium)	2.3 - 2.8 μ m	Kendrick (1961)
	1.7 - 2.4 μ m (Subsequent conidia)	1.7 - 2.4 μ m (Globose)	
<u>P. canadensis</u> Kendrick	1.4 - 2.2 μ m	2.2 - 3.6 μ m	" "

<u>P. fluminis</u> Shearer, Crane & Millar	2.0 - 3.0 μ m	1.0 - 1.6 μ m	Shearer, Crane & Millar (1976)
<u>P. fortini</u> Wang & Wilcox	3.0 μ m (First conidium)	1.0 - 1.5 μ m	Wang & Wilcox (1985)
	1.5 - 2.0 μ m (Subsequent conidia)	1.5 - 2.0 μ m (Globose)	
<u>P. fusca</u> Kendrick	2.0 - 4.8 μ m	1.0 - 2.6 μ m	Kendrick (1963)
<u>P. humicola</u> Jong & Davis	2.0 - 4.0 μ m	1.0 - 2.0 μ m	Jong & Davis (1975)
<u>P. illini</u> Crane	10.0 - 12.3 μ m	2.3 - 4.1 μ m	Crane (1971)
<u>P. mexicana</u> Onofri & Zucconi	7.2 - 10.0 μ m	1.0 - 1.8 μ m	Onofri & Zucconi (1984)
<u>P. phycomyces</u> (Auesw.) Kendrick	3.0 - 5.4 μ m	1.7 - 3.0 μ m	Kendrick (1964)
<u>P. repens</u> (C. & E.) Kendrick	1.6 - 2.8 μ m	1.6 - 2.8 μ m (Globose)	Kendrick (1963)
<u>C. xalapensis</u> Persiani & Maggi	3.0 - 4.0 μ m	1.8 - 2.0 μ m	Maggi & Persiani (1984)



Figs. 1-3. *Chaetopsina illini*. Fig. 1. Conidiophore with conidia (bar = 25 μ). Fig. 2. Conidia (bar = 10 μ). Fig. 3. Apex of conidiophore with conidiogenous cells and branched seta (bar = 10 μ).

this fungus might be more appropriately placed. A potential genus was Chaetopsina which includes species with setose conidiophores and large conidia such as those found in P. illini. For this reason type material of P. illini (ILLS 34911) was examined and compared with that of C. penicillata Samuels (Dumont-EC 609: NY) which has conidia resembling P. illini. Previously reported conidial dimensions of other Chaetopsina spp. and Phialocephala spp. were also compared (Table 1).

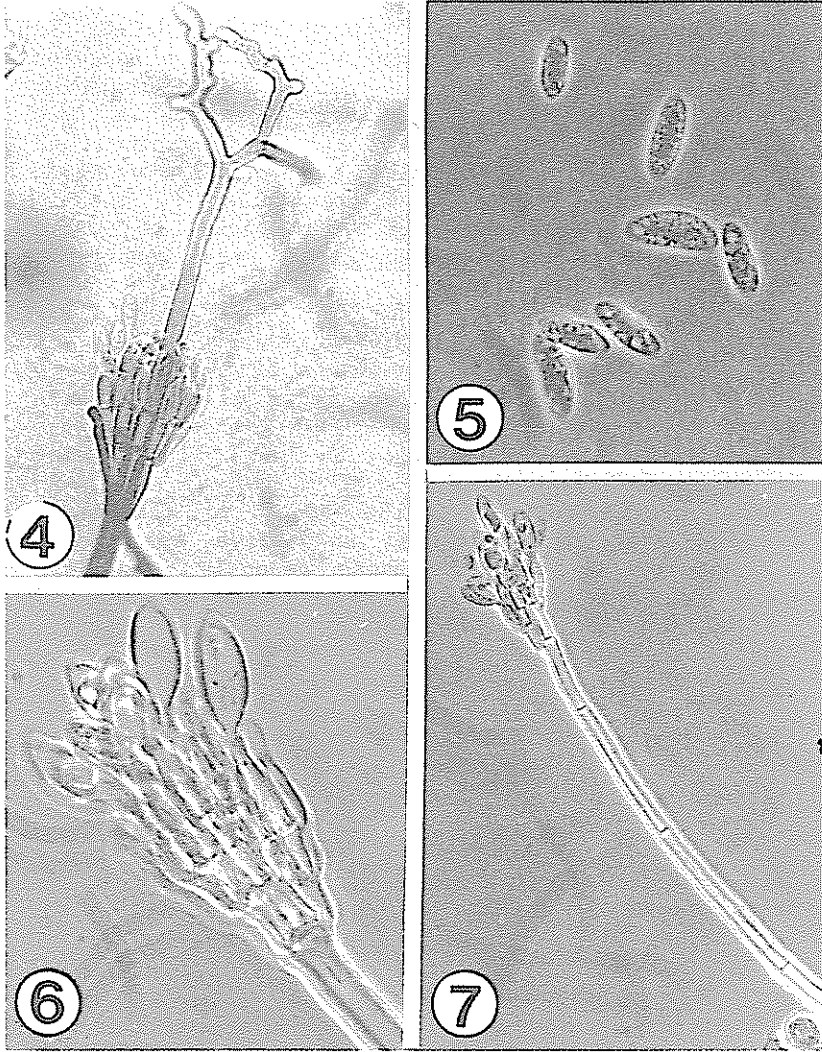
Samuels (1985) described three new species of Chaetopsina that were all anamorphs of the teleomorph genus Nectria (Fr: Fr.) Fr. (Hypocreales). These Chaetopsina spp. all have red brown, setose conidiophores that turn yellow in 100 % lactic acid. In a recent reassessment of Chaetopsina, Kirk and Sutton (1985) restricted the genus to the above characteristics and included only five species in this genus. In view of these recently recognised characteristics of Chaetopsina, the colour of conidiophores in P. illini was examined more closely. These were found to be red brown and turned yellow in 100 % lactic acid typical of Chaetopsina spp. The setose conidiophores, large conidia and conidiophore colour suggest that this fungus is more appropriately accommodated in Chaetopsina. The following synonymy is therefore proposed:

Chaetopsina illini (Crane) Wingfield comb. nov.
Phialocephala illini Crane Trans. Br. Mycol. Soc. 56: 162 (1971).

Chaetopsina illini most closely resembles C. penicillata (Figs. 4-7) but is easily distinguished from all Chaetopsina spp. by its forked or branched setae. These observations are based entirely on morphological characteristics of an anamorph. Ideally, knowledge of the teleomorph of C. illini would be desirable as Chaetopsina appears to best be restricted to anamorphs of Nectria.

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Figs. 4-7. *Chaetopsina illini* and *C. penicillata*.
 Fig. 4. Apex of *C. illini* conidiophore with conidiogenous apparatus and branched seta, X 1000 Fig. 5. Conidia of *C. illini*, X 1600 Fig. 6. Apex of *C. penicillata* conidiophore with conidia, X 1750 Fig. 7. Conidiophore of *C. penicillata*, X 700.

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LITERATURE CITED

- CRANE, J.L. (1971). Illinois fungi II. A new species of Phialocephala. Transactions of the British Mycological Society 56, 160-163.
- JONG, S.C. & DAVIS, E.E. (1975). Phialocephala gaba-longi as a synonym of Phialocephala humicola. Mycotaxon 3, 126-128.
- KENDRICK, W.B. (1961). The Leptographium complex. Phialocephala gen. nov. Canadian Journal of Botany 39, 1079-1085.
- KENDRICK, W.B. (1962). The Leptographium complex. Verticicladiella Hughes. Canadian Journal of Botany 40, 771-797.
- KENDRICK, W.B. (1963). The Leptographium complex. Two new species of Phialocephala. Canadian Journal of Botany 41, 1015-1023.
- KENDRICK, W.B. (1964). The Leptographium complex. Hantzschia Auerswald. Canadian Journal of Botany 42, 1291-1295.
- KIRK, P.M. & SUTTON, B.C. (1985). A reassessment of the anamorph genus Chaetopsina (Hyphomycetes). Transactions of the British Mycological Society 85, 709-718.
- MAGGI, O. & PERSIANI, A.M. (1984). Codinaea coffeae and Phialocephala xalapensis. Mycotaxon 20, 251-258.
- ONOFRI, S. & ZUCCONI, L. (1984). Two new species of the genus Phialocephala. Mycotaxon 20, 185-195.
- SAMUELS, G.J. (1985). Four new species of Nectria and their Chaetopsina anamorphs. Mycotaxon 22, 13-32.
- SHEARER, C.A., CRANE, J.L. & MILLAR, M.A. (1976). Illinois fungi 6. Two new species of wood-inhabiting Hyphomycetes from freshwater. Mycologia 68, 184-189.
- WANG, C.J.K., & WILCOX, H.E. (1985). New species of ectendomycorrhizal and pseudomycorrhizal fungi: Phialophora finlandia, Chloridium paucisporum, and Phialocephala fortinii. Mycologia 77, 951-958.

- WINGFIELD, M.J. (1985). Reclassification of Verticicladiella based on conidial development. Transactions of the British Mycological Society 85, 81-93.
- WINGFIELD, M.J., VAN WYK, P.S. & WINGFIELD, B.D. (1987). Reclassification of Phialocephala based on conidial development. Transactions of the British Mycological Society (In press).