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LIBERTINA, A SYNONYM OF *PHOMOPSIS*

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(With 1 Text-figure)

Libertina effusa (Lib.) Höhn., the type species of *Libertina* Höhn., and *L. stipata* (Lib.) Höhn. are redescribed from the syntype collections of *Ascochyta effusa* Lib. and *A. stipata* Lib. and shown to be conspecific. The similarity with some *Phomopsis* species that produce B-spores is emphasized and *P. effusa* (Lib.) comb.nov. is proposed.

LIBERTINA

Few genera of the Fungi Imperfecti have been the source of such confusion as *Cylindrosporium* Grev. Many misapplications of this name have stemmed from various interpretations placed on the rather variable fructifications and to a lesser extent undue emphasis on slight differences in conidiophore and conidium morphology. Several large genera have been confused with *Cylindrosporium*—namely *Septoria* Fr. ex Fr. sensu Sacc., *Phloeospora* Wallr., and *Septogloeum* Sacc.—and many smaller genera have been split from these on relatively minor characters. Höhnel (1924), in a revision of *Cylindrosporium* sensu Sacc., concluded that *Cylindrosporium* Grev. is a distinct monotypic genus. He removed some of the species which had filiform spores formed from acervuli to *Phloeospora* and *Septoria*, and placed others in small genera such as *Allantozythia* Höhn., *Phloeosporina* Höhn., *Phloeosporella* Höhn., *Cercosporella* Sacc., *Entylomella* Link ex Fr. and *Libertina* Höhn.

The name *Libertina* was proposed by Höhnel (1920) in his revision of *Phlyctaena* Desm. and accompanying discussion of *Cylindrosporium*. The genus was represented by a single species *L. effusa* (Lib.) Höhn. (≡ *Ascochyta effusa* Lib.) and described as 'eine blattbewohnende *Libertella* mit meist einfachen, dicken, septierten Konidienträgern, die oben pfriemlich zugespitzt sind und deren Konidien end- und seitenständig sind'. A second species, *L. stipata* (Lib.) Höhn. (≡ *Ascochyta stipata* Lib.), was added by Höhnel (1924), but no more additions have been made to the genus.

PHOMOPSIS

The generic features of *Phomopsis* (Sacc.) Sacc. (1905) are more precisely known than for many of the related phomoid genera in this group. Several species of *Phomopsis* have been shown to be the conidial states of *Diaporthe* Nits. by Wehmeyer (1933). The size, shape and structure of the pycnidia are particularly variable (Hahn, 1930). They range from being simple and

unilocular to stromatic and plurilocular. Simpler pycnidia tend to be formed when the fungus is foliicolous rather than caulicolous. Conidiophores are filiform to subulate, septate and branched and more rarely they are simple and unicellular. *Phomopsis* species are potentially capable of producing two types of conidia, both of which are formed from minute apical phialides (Sutton, 1964, 1965). Diedicke (1911) distinguished between A-conidia which were generally unicellular, hyaline and fusiform with a single guttule at each end of the spore, and B-conidia which were aseptate, filiform to hamate and hyaline. In some species only A-spores are known to occur, but in others both A- and B-spores are produced in variable proportions in the same pycnidium. All the species studied by Diedicke were shown to form A-spores; a few were reported with B-spores. Grove (1935) described A-spores for 170 species but reported B-spores for only 64 of these. There have been few reports of the B-spore state occurring on its own. Wehmeyer (1927) noted that in the *Phomopsis* states of *Diaporthe megalospora* Ell. & Ev. and *D. peckii* Sacc., B-spores were formed first in culture, later followed by the formation of A-spores. Single spore cultures of the *Phomopsis* state of *D. decedens* (Fr.) Fuckel, when inoculated on to twigs of *Corylus americana* produced only B-spores in the pycnidia, whereas in the original culture both types of conidia were formed. Grove (1935) reported that the B-spores of *Phomopsis incarcerata* (Sacc.) Höhn. appeared earlier, in the winter, while A-spores followed in the spring, at first in the same pycnidia, later in separate pycnidia. In *P. perexigua* (Sacc.) Trav., *P. leycestriae* Grove and *P. citriodora* Grove, he reported two types of pycnidia, one containing A-spores and the other B-spores; in *P. oncostoma* (Thüm.) Höhn., he noted one collection in which the pycnidia contained only B-spores. Some species which apparently only produce B-conidia have been referred to *Libertella* Desm. by Grove (1937). Until type studies have determined the proper relationships of *Libertella*, the name *Phomopsis* is being adopted for these species.

There is a close resemblance between *Libertina effusa*, *L. stipata* and the B-spore state of some *Phomopsis* species. The foliicolous fructifications are relatively simple undivided pycnidia; the conidiophores are septate, branched, phialidic, and produce filiform to hamate, aseptate conidia. Since *L. effusa* and *L. stipata* are conspecific and agree closely with the generic characters of *Phomopsis* (Sacc.) Sacc., *Libertina* Höhn. is reduced to synonymy and the following new combination is proposed:

Phomopsis effusa (Lib.) comb.nov. (Fig. 1)

Basionym: *Ascochyta effusa* Lib., M. A. Libert, *Pl. Crypt. Ard.*, Fasc. IV, n. 355, 1837

Septoria effusa (Lib.) Desm., *Ann. Sci. nat.* **8**, 23, 1847

Libertina effusa (Lib.) Höhn., *Ber. dt. bot. Ges.* **38**, 107, 1920

Ascochyta stipata Lib., M. A. Libert, *Pl. Crypt. Ard.*, Fasc. IV, n. 354, 1837

Septoria stipata* (Lib.) Sacc., *Sylloge Fungorum* **10, 352, 1902

Libertina stipata (Lib.) Höhn., *Annls mycol.* **22**, 197, 1924.

* The binomial '*S. stipata* (Lib.) Westd., Crypt. p. 129' is listed by Oudemans (1921) but it has not been possible to check the reference.

Description from syntype of *A. effusa*. Lesions 2–5 cm diam, variable, at first circular, becoming spreading and irregular, reddish-brown in the centre, becoming lighter cream-brown at the edge, margin irregular, rather diffuse, to some extent vein-limited. *Pycnidia* immersed, solitary,

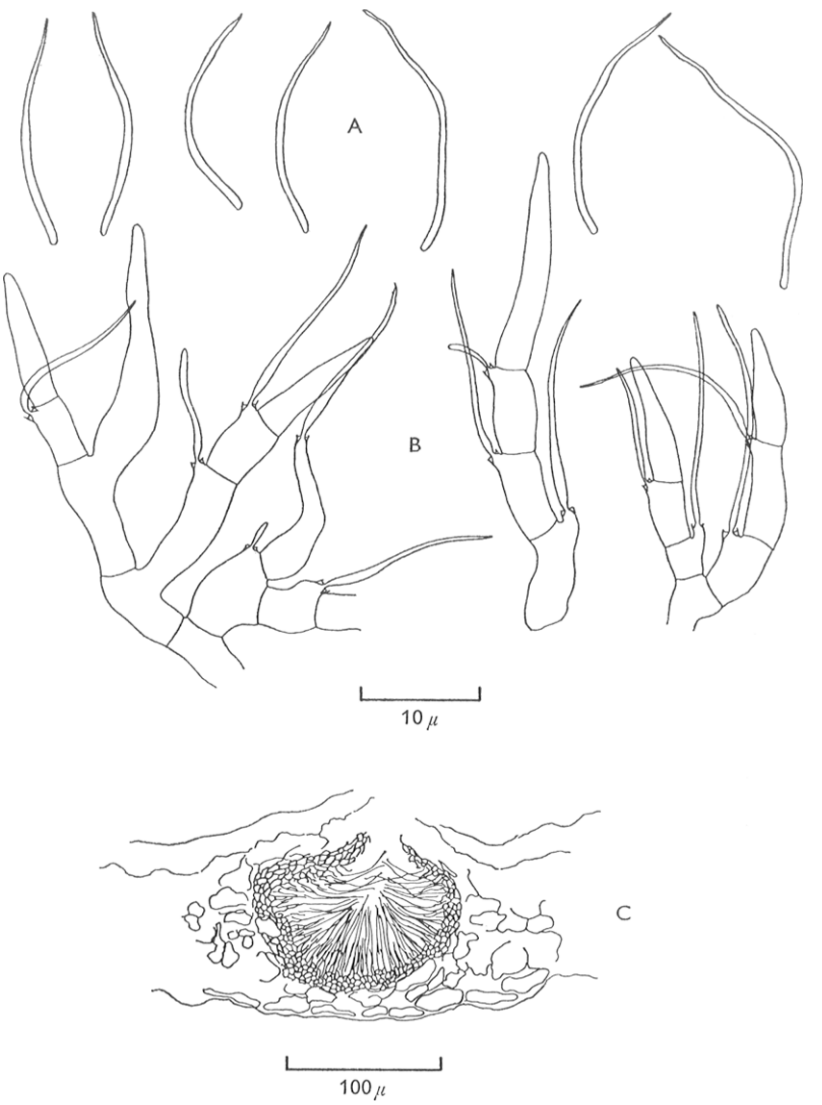

Fig. 1. *Phomopsis effusa*. A. Filiform conidia (**IMI** 101344); B, subulate phialidic conidiophores (**WINF(M)** 3559); C, vertical section of globose, epiphyllous pycnidium (**IMI** 101344).

rarely confluent, hypophyllous, globose, becoming depressed, honey-yellow to pale brown, with honey-yellow basal and lateral walls up to five cells thick and umber thicker-celled upper walls near the ostiole, 120–185 μ

wide × 100 μ deep; cavity simple, undivided; ostiole single, circular, at first 20–25 μ diam, later becoming wide and depressed. *Conidiophores* formed all round the inner wall of the pycnidium, filiform to subulate, hyaline, septate, branched at the base and more rarely just below transverse septa, bearing terminal phialides with minute apical collarettes, 15–40 × 6 μ wide at the base, tapering to 2 μ wide. *A-conidia* absent. *B-conidia* phialidic, filiform, sigmoid or hamate, tapered gradually to obtuse or acute apices, base blunt, aseptate, eguttulate, hyaline, 16·5–24 × 1·5–2 μ.

The syntype of *A. stipata* differs in some points from the above description, but the differences are not considered significant enough to justify the separation of the two collections into distinct taxa. Lesions were up to 1 cm diam, grey-brown, with a distinct margin. Pycnidia were epiphyllous rather than hypophyllous and remained more or less globose. There was no difference in size and structure of pycnidia, conidia, or conidiophores.

Specimens examined:

on leaves of *Prunus avium*, Autumn. M. A. Libert, Pl. Crypt. Ard., fasc. IV, 355. Syntype of *Ascochyta effusa* Lib. **WINF(M)** 3559 ex **DAOM** on leaves of *Prunus padus*, Autumn. M. A. Libert, Pl. Crypt. Ard., fasc. IV, 354. Syntype of *Ascochyta stipata* Lib. **IMI** 101344 ex **P.**

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REFERENCES

DIEDICKE, H. (1911). Die gattung *Phomopsis*. *Annls mycol.* **9**, 8–35.
GROVE, W. B. (1935). *British stem- and leaf-fungi*, vol. I, pp. 1–488. Cambridge University Press.
GROVE, W. B. (1937). *British stem- and leaf-fungi*, vol. II, pp. 1–407. Cambridge University Press.
HAHN, G. G. (1930). Life history studies of the species of *Phomopsis* occurring on conifers. Part 1. *Trans. Br. mycol. Soc.* **15**, 32–93.
HÖHNEL, F. VON (1920). Über die Gattung *Phlyctaena* Desmazières. *Ber. dt. bot. Ges.* **38**, 102–110.
HÖHNEL, F. VON (1924). Beitrag zur Kenntnis der Gattung *Cylindrosporium* Grev. *Annls mycol.* **22**, 191–203.
OUDEMANS, C. A. J. A. (1921). *Enumeratio systematica fungorum* **3**, 1–1313. The Hague, Netherlands.
SACCARDO, P. A. (1905). Notae Mycologicae. *Annls mycol.* **3**, 165–171.
SUTTON, B. C. (1964). *Phoma* and related genera. *Trans. Br. mycol. Soc.* **47**, 497–509.
SUTTON, B. C. (1965). Typification of *Dendrophoma* and a reassessment of *D. obscurans*. *Trans. Br. mycol. Soc.* **48**, 611–616.
WEHMEYER, L. E. (1927). Cultural life histories of *Diaporthe*. II. *Mycologia* **19**, 165–183.
WEHMEYER, L. E. (1933). *The genus* Diaporthe *Nitschke and its segregates*, pp. 1–349. Ann Arbor: University of Michigan Press.

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