

Sphaerodes, a newly recorded genus in China

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中国一新记录属——球壳属

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The genus *Sphaerodes* was founded by Clements to accommodate *S. episphaeria* in 1909. It was distinguished from *Sphaeroderma* by the lack of a subiculum. Because of Clements' incorrect differentiation of *S. episphaeria* and *Neocosmospora*, the genus was not used by later authors. Clements & Shear (1931) incorrectly suppressed the name in favor of *Vittadinula* (Sacc.) Clem. & Shear, which Saccardo (1883) had treated as a subgenus of *Sphaeroderma* with the same diagnostic feature as *Sphaerodes*. Some authors integrated the genus with *Sphaeroderma* (e. g. Petch, 1938), *Melanospora* (e. g. Doguet, 1955) or *Microthecium* (e. g. Hawksworth & Udagawa, 1977), while von Arx (1981) emphasized it for *Melanospora*-like fungi with reticulations on the ascospores. Cannon & Hawksworth (1982) re-evaluated *Melanospora*, *Sphaerodes* and similar pyrenomyces of the family Ceratostomataceae (Hypocreales) and clarified their differentiation.

The genus *Sphaerodes* is characterized by coarse reticulate ascospores and strongly protruding tuberculate germ pores on both ends of the spores. *Sphaerodes* is morphologically very close to *Melanospora* and *Microthecium*. Zhang & Blackwell (2002) studied the molecular phylogeny of *Melanospora* and related genera and found that *Melanospora* and *Sphaerodes* formed a basal clade within the Hypocreales, indicating that they have a common phylogenetic origin. Zhang & Blackwell (2002) concluded that in Ceratostomataceae ascospore shape and the structure of the germ pores are more informative characters than wall ornamentation. Therefore García *et al.* (2004) transferred some species of *Microthecium* to *Sphaerodes*. *Sphaerodes* is commonly saprophytic in soil or dung.

By far 12 species have been described in the genus *Sphaerodes* (García *et al.*, 2004). The characters taken for differentiating between *Sphaerodes* species include the features such as the presence or not of ostioles, the size, shape and ornamentation of the ascospores, the amount of ascospores in an ascus and the structure of the germ pores. *Sphaerodes* is widespread in the world but unrecorded previously in China.

Sphaerodes Clem., Genera of Fungi: 173, 1909.

Sphaeroderma subgen. *Vittadinula* Sacc., Sylloge Fungorum, 2: 460, 1883.

Vittadinula (Sacc.) Clem. & Shear, Genera of Fungi: 281, 1931.

Type: *Sphaerodes episphaeria* (Phill. & Plowr.) Clem.

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Fruit bodies often cleistothecial, rarely perithecial, neck very short or absent, superficial, rarely immersed, solitary to gregarious, usually \pm globose, glabrous; wall membranous, translucent, usually rather thin, pale yellow to brown, appearing dark brown or black when mature due to spore mass. Asci clavate, thin-walled, lacking any distinct apical apparatus, evanescent, 4- or 8-spored. Ascospores ellipsoidal to citriform, dark brown to black, coarsely reticulate with strongly apiculate to umbonate or tuberculate pores.

Sphaerodes fimicola (Hansen) P. Cannon & D. Hawksw, Bot. J. Linn. Soc, 84: 146, 1982. Fig. 1
Melanospora fimicola Hansen, Afttryk af Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening i Kjøbenhavn, 1876: 305, 1876.

= *Sphaeroderma fimiculum* (Hansen) Sacc., Sylloge Fungorum, 2: 460, 1883.

= *Melanospora ornata* Zukal, Verhandlungen der Kaiserlich-Königlich Zoologisch-Botanisch Gesellschaft in Wien, 35: 340, 1885.

= *Sphaerodes ornata* (Zukal) v. Arx, Genera of fungi sporulating in pure culture, 3rd ed.: 156, 1981.

= *Sphaeroderma hulseboschii* Oudem., Contributions à la Flore Mycologique des Pays Bas, 11: 23, 1886.

= *Melanospora hulseboschii* (Oudem.) Doguet, Le Botaniste, 39: 121, 1955.

Colonies on PDA at 20-24°C growing rapidly, attaining a diameter of 4.0-5.0 cm in 10 days. Mycelium white, usually thin. Ascumata perithecial, superficial, often gregarious, globose to subglobose, orange, appearing golden-brown due to spore mass, 200-400 μ m in diameter, thin-walled, sparsely hairy; ostiolate, neck very short, to 25-60 μ m in length, ostiole 40-80 μ m wide, no coronal setae or indigently developed if present. Ascus 4- to 8-spored, oblong to clavate, 40-55 \times 25-30 μ m, evanescent. Ascospores citriform, dark brown to nearly black, coarsely reticulate, with two sharply apiculate pores in the tips, 15-25 \times 10-15 μ m.

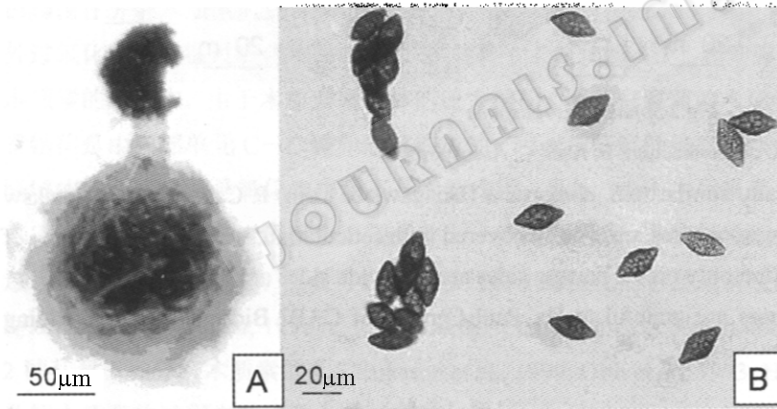


Fig.1 *Sphaerodes fimicola*
 A. Perithecial; B: Asci and Ascospores

Habitat: Saprophyte on diseased corn seedlings.

Specimen: IBE 001019. Collected by Gao Xiao-Mei from Dalian, Liaoning Province in April 2005.

Distribution: Europe, U.S.A, China.

Note: *S. fimicola* is quite different from *S. retispora* in fruit body, the former is perithecial with ostiolate and short neck, the latter is cleistothecial.

Sphaerodes retispora (Udagawa & Cain) P. Cannon & D. Hawksw, Bot. J. Linn. Soc. 84: 149, 1982. Fig. 2

Colonies on PDA at 20-25°C growing rapidly, attaining a diameter of 6.0-7.0cm in 8 days. Mycelium white and sparsely thin, reverse yellowish due to the fruit bodies. Ascumata cleistothecial, abundant, superficial to immersed, globose to subglobose, solitary, ranging from 80-200 μ m in diam, glabrous, flesh-colored to yellowish-orange, appearing black due to the maturing brown ascospores. Ascus 8-spored, broadly clavate, 30-60 \times 17.5-25 μ m, quickly evanescent. Ascospores citriform, dark olive-brown, very coarsely reticulate, with 10-12 deep lumina 3-6.5 μ m in width on each face of the spore, 17.5-20 \times 10-12 μ m.

Habitat: Rhizosphere soil of *Larix olgensis* in forest.

Specimen: IBE006717. Collected by Yao Xian-Min from Antu, Jilin Province in June 2006.

Distribution: New Guinea, Japan, China.

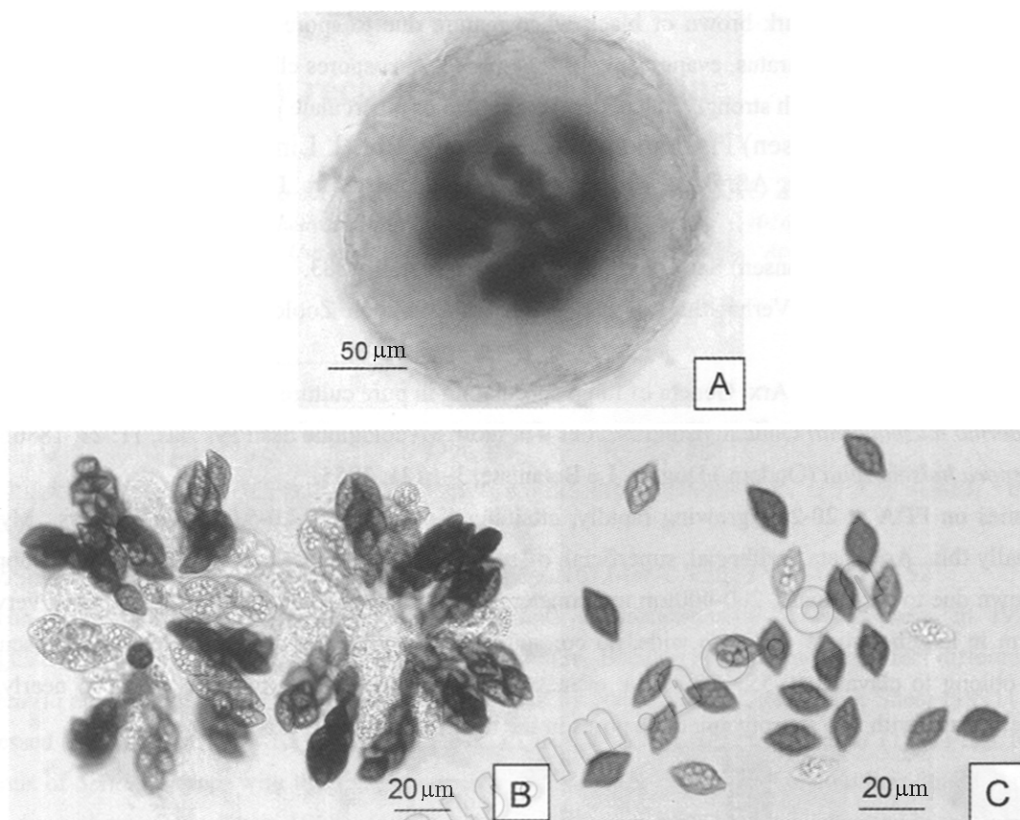


Fig.2 *Sphaerodes retispora*

A. cleistothecium; B. Asci; C. Ascospores.

Note: *S. retispora* is morphologically similar to *S. compressa* (Udagawa & Cain) P. Cannon & D. Hawksw (Cannon & Hawksworth, 1982), but its ascospores are wholly covered with reticulation, while the ascospores of *S. compressa* are covered with reticulation only on the narrow sides and the wide sides are relatively smooth.

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