

Mycosphaerella valgourgensis



Fungal Planet 89 – 31 May 2011

***Mycosphaerella valgourgensis* Crous, sp. nov.**

Mycosphaerellae deightonii similis, sed ascosporus majoribus, (13–)17–19(–22) × 3(–3.5) µm, discernitur.

Etymology. Named after the town where it was collected, Valgourge.

Leaf spots ellipsoid to subcircular, amphigenous, dark brown with a raised border, up to 3 cm long, and 1 cm diam. *Ascstromata* amphigenous, up to 500 µm diam, black, erumpent through epidermis, containing several ascomata up to 180 µm diam, thick-walled, of several layers of *textura angularis*; ostiole central, periphysate. *Asci* fasciculate, broadly ellipsoid, straight to incurved, bitunicate, 8-spored, with apical chamber, 40–50 × 8–10 µm. *Ascospores* hyaline, smooth, fusoid-ellipsoidal, medianly 1-septate, guttulate, slightly incurved, widest just above septum, tapering towards both acutely rounded ends, thick-walled, (13–)17–19(–22) × 3(–3.5) µm; ascospores germinate after 24 h on malt extract agar from both ends, with germ tubes parallel to the long axis of the spore, and lateral branches also developing, becoming constricted at median septum, but remaining hyaline, 5–6 µm diam. Hyphomycete anamorph formed in culture. *Mycelium* consisting of hyaline, smooth, septate, branched, 2–3 µm diam hyphae. *Conidiogenous cells* holoblastic, terminal on hyphae, hyaline, subcylindrical, smooth, 10–20 × 3–4 µm. *Conidia* solitary, subcylindrical to narrowly obclavate, straight to flexuous, apex obtuse, base truncate, multiseptate, 45–150 × 3–4 µm; hila truncate, not thickened nor darkened, with visible marginal frill; with age conidia tend to become pale olivaceous and finely verruculose.

Culture characteristics — (in the dark, 25 °C, after 2 wk): Colonies slow growing, erumpent, with folded surface and sparse aerial mycelium; margins even, lobate, reaching 4 mm diam after 2 wk; on malt extract agar surface pale olivaceous grey, reverse umber; on potato-dextrose agar surface olivaceous grey with patches of apricot to scarlet, reverse iron-grey with patches of scarlet due to diffuse red pigment and crystals in agar; on oatmeal agar surface smoke-grey with patches of olivaceous grey, with diffuse red pigment in agar.

Typus. FRANCE, Ardeche, Valgourge, Domaine Le Fraysse, N 44°35.469' E 004°07.710', on leaves of *Yucca* sp., 15 July 2010, P.W. Crous, holotype CBS H-20593, culture ex-type CPC 18385 = CBS 129531, ITS sequence GenBank JF951152 and LSU sequence GenBank JF951175, MycoBank MB560178.

Notes — Several species of *Mycosphaerella* are listed from *Yucca* by Aptroot (2006). *Mycosphaerella sphaerelloides* (type could not be located; Aptroot 2006), was seen as a synonym of *Mycosphaerella tassiana* (now *Davidiella*) by von Arx (1949). *Mycosphaerella yuccae* was shown to be a species of *Guignardia* (Aptroot 2006), while *M. yuccina* appeared to be a possible species of *Dothidea* (immature specimen) (Aptroot 2006). Two species relevant for comparison to *M. valgourgensis* are *M. acervata* (= *Planistromella acervata*), which has larger asco-

spores (24–29 × 3.5–5 µm; Aptroot 2006), and *M. deightonii* (anamorph *Pseudocercospora concentrica*), which again has smaller ascospores than *M. valgourgensis* (14.5–17 × 3.5–4 µm; Sivanesan 1984). Based on several collections made by Annette Ramaley, Barr (1996) concluded that *Planistromella acervata* represented a species complex (based on differences in ascospore sizes, and certain collections with different ascospores being able to form anamorphs in culture).

With the description of *M. valgourgensis*, we name a species presently intermediate between *M. acervata* and *M. deightonii*. Furthermore, the cercosporoid anamorph studied here is also, *Pseudocercospora*-like, clustering apart from *Pseudocercospora* s.str. Morphologically it is also rather different from *Pseudocercospora*, with conidia initially being hyaline, and later becoming pale brown and verruculose, with a basal marginal frill. Lastly, the newly introduced family, *Planistromellaceae* (Barr 1996) is clearly heterogeneous, and the type species, *P. yuccifoliorum* with its 3-septate ascospores and *Kellermania* anamorph would probably cluster apart from *M. valgourgensis*, but further collections are required to resolve this. Interestingly enough, *M. valgourgensis* (*Planistromella* sensu Barr, based on its erumpent, aggregated stromatic ascomata, and remnants of hamathecial tissue) clusters close to *Dothistroma* anamorphs, for which Barr (1996) established the genus *Eruptio*, based on their aggregated, stromatic, multiloculate ascomata. The latter feature may well end up being the only unifying character to separate taxa in this clade from *Mycosphaerella* s.str. However, the generic names *Eruptio* (based on *E. acicula* with *Lecanosticta* anamorph), *Mycosphaerella* (based on *M. punctiformis*, and having *Ramularia* anamorphs) and *Planistromella* (based on *P. yuccifoliorum* and having *Kellermania* anamorphs), are clearly not congeneric with *M. valgourgensis*. More taxa need to be added to the alignment to clarify the genera in this specific clade of the *Mycosphaerellaceae*. For the present, however, this species is best described in *Mycosphaerella* until the generic concepts of this clade are better resolved.

Based on a megablast search of NCBI's GenBank nucleotide database, the closest hits using the ITS sequence are *Mycosphaerella aurantia* (EU853471; Identities = 494/494 (100 %), Gaps = 0/494 (0 %)), *Mycosphaerella microsora* (EU167599; Identities = 645/647 (99 %), Gaps = 0/647 (0 %)) and *Mycosphaerella buckinghamiae* (EU707856; Identities = 603/605 (99 %), Gaps = 0/605 (0 %)). A similar search using the LSU sequence obtained as closest hits sequences of *Passalora bellynckii* (GU214454; Identities = 879/880 (99 %), Gaps = 0/880 (0 %)), *Passalora* sp. CBS 115525 (GU214460; Identities = 878/880 (99 %), Gaps = 0/880 (0 %)) and *Mycosphaerella keniensis* (DQ246259; Identities = 878/880 (99 %), Gaps = 0/880 (0 %)).

Colour illustrations. *Yucca* sp. growing at Domaine Le Fraysse, Valgourge; erumpent ascoma; asci and ascospores; germinating ascospore; conidia. Scale bars = 10 µm.