

Diplogelasinospora moalensis



Fungal Planet 272 – 10 June 2014

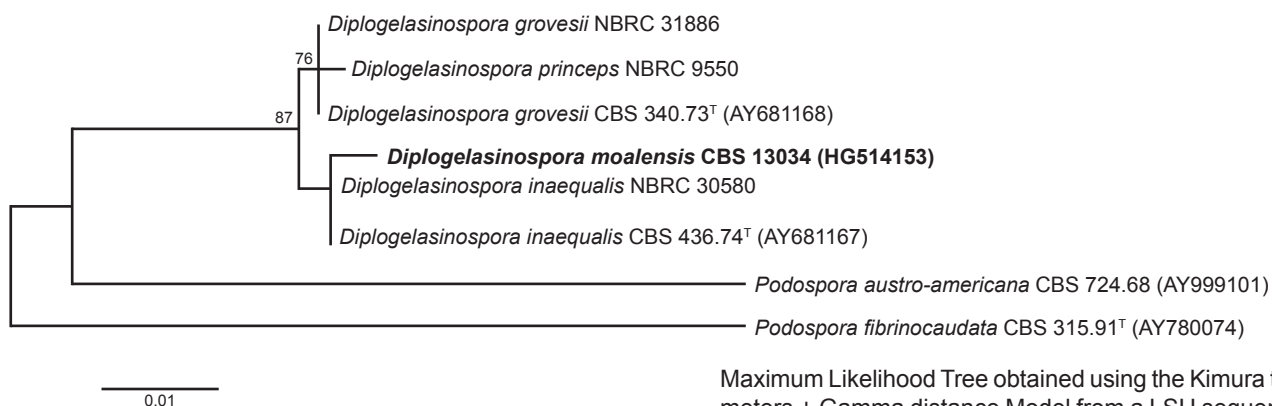
Diplogelasinospora moalensis Dania García, Y. Marín & Cano, *sp. nov.*

Etymology. Named after woodland Moal, surrounding the village where the soil samples were collected.

Mycelium consisting of branched, septate, smooth, 2–5 µm diam hyphae. *Ascospores* cleistothecial, superficial to immersed, scattered to grouped, at first yellowish brown, becoming black at maturity, 170–310 µm diam, hairy, covered by hyphae-like, setae. *Setae* flexuous, slightly rugose- and thick-walled, and yellowish brown to brown, up to 500 µm long, measuring 2–7 µm at base. *Peridium* membranaceous to slightly carbonaceous, brown to black and opaque, 3–4-layered, 2–5 µm thick, outer layer *textura intricata* composed of brown, thick-walled hypha-like cells which cover a second layer with *textura cephalothecoid* cells; inner layers hyaline, cells of *textura angularis*. *Asci* 8-spored, soon evanescent, lacking a distinct apical ring, at first cylindrical, becoming cylindrical-clavate, short stipitate, 150–180 × 14–22 µm. *Paraphyses* abundant, cylindrical to moniliform, septate and sometimes constricted at the septa, 3–13 µm diam. *Ascospores* at first aseptate and hyaline, irregularly uniseriate, ellipsoidal, becoming transversely septate without constriction at the septum, which is near the upper third of the ascospore; one cell becoming dark brown to black, whereas the other remaining hyaline or less frequently pale yellowish brown and usually collapsing at maturity. Ascospores (18–)20–27 µm in length, dark cell 16–19 × 15–18 µm; both cells showing ornamented walls with circular inwardly projecting pits showing an endodontate endosporium; germ pore inconspicuous, subapical to laterally disposed at dark cell, 1–2 µm diam.

Culture characteristics — Colonies on Czapek agar and oatmeal agar attaining 80 mm diam after 14 d at 25 °C; velvety to cottony olive-brown (4E8); reverse dark brown (8F4) (Kornerup & Wanscher 1984). Minimum and maximum temperature of growth: 10 and 45 °C, respectively. Production of initial ascospores were detected at 25, 30 and 35 °C after 14 d, mature ascospores were observed after 21 d at the same temperatures.

Typus. SPAIN, Principado de Asturias, Cangas del Narcea, Veiga de Rengos, Moal, 14 Aug. 2012, G. Sisó-Boix & D. García (holotype CBS H-21382, cultures ex-type FMR 13034 = CBS 136018; ITS sequence GenBank HG514152, LSU sequence GenBank HG514153, MycoBank MB804992).



Colour illustrations. Moal forest, Asturias, Spain; *Diplogelasinospora moalensis* growing on Czapek and OAT, asci and ascospores. Scale bars = 10 µm

Notes — The genus *Diplogelasinospora* was erected to accommodate *D. princeps* characterised by non-ostiolate ascospores and 2-cell ascospores with pitted walls (Udawaga & Horie 1972). Although the ex-type strain of *D. princeps* was isolated from flax seed, the other strains of this species had been isolated from soil, the same source where the other species of the genus were collected. Currently, the genus includes two other species, namely *D. grovesii* and *D. inaequalis* (Udagawa et al. 1973). The morphological characters used for species delimitation are the total length of the ascospores, the septum position and the ornamentation of the ascospore wall (Udawaga & Horie 1972, Udagawa et al. 1973). *Diplogelasinospora moalensis* has a septum in the upper third of the ascospores, as observed in *D. inaequalis*; however, the latter has smaller ascospores (up to 22 µm) and the ornamentation pattern is similar to *D. princeps* and *D. grovesii*, i.e. reticulated wall formed by circular to elongate pits (up to 3 µm in *D. princeps*). On the other hand, *D. moalensis* has finely ornamented ascospores showing small, inward pits. Both ornamentation patterns are similar to those found in *Gelasinospora* (syn. *Neurospora*); however, Cai et al. (2006) confirmed that *Diplogelasinospora* is phylogenetically unrelated to *Gelasinospora* and showed that *Diplogelasinospora* is more related to *Lasiosphaeriaceae* than *Sordariaceae*.

A Blast search using the ITS sequence of our isolate showed a 98 % and 96 % similarity with those of *D. inaequalis* (AY681201) and *D. grovesii* (NR_077164), respectively. The LSU tree corroborated that *D. moalensis* is a new taxon in the genus, more closely related to *D. inaequalis* (NBRC 30580 and CBS 436.74) (TreeBASE ID 14810). The two branches formed suggest that the septal position is an informative character in this group, since the species with a median septum, such as *D. princeps* (NBRC 9550) and *D. grovesii* (CBS 340.73 and NBRC 31886) form a separate lineage, whereas those species with the septum displaced in the upper third generate another group. Although only a tentative hypothesis should currently be suggested, the inclusion of more isolates and new taxa may possibly help to solve the phylogenetic position of the genus and elucidate the real value of these morphological characters.

Maximum Likelihood Tree obtained using the Kimura two Parameters + Gamma distance Model from a LSU sequence alignment generated with MUSCLE in MEGA v. 5.2 (Tamura et al. 2011). The bootstrap support values above 70 % from 1 000 replicates are shown at the nodes. Bar represents number of substitutions per site. The species described here is printed in **bold face**. *Podospora austro-americana* and *Podospora fibrinocaudata* were used as outgroup. ^T = Ex-type strain.