

Mycena gladiocystis, a rare foliicolous species growing on *Quercus ilex*

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Key words: *Agaricales* s.l., *Tricholomataceae*, *Mycena gladiocystis*. – New record, taxonomy. – Spanish mycobiota.

Abstract: *Mycena gladiocystis*, a rare species from section *Fragilipedes*, occurring in mediterranean holm-oak woods from Spain, is described and illustrated macro- and microscopically. It is characterized by its very small habit, smooth lageniform pleuro- and cheilocystidia and its habitat on dead leaves of *Quercus ilex* subsp. *ballota*.

Zusammenfassung: *Mycena gladiocystis*, eine seltene Art der Sektion *Fragilipedes*, die in mediterranen Steineichenwäldern in Spanien vorkommt, wird beschrieben sowie makro- und mikroskopisch illustriert. Sie ist gekennzeichnet durch ihren kleinen Habitus, glatte, lageniforme Pleuro- und Cheilozystiden und ihr Habitat auf toten Blättern von *Quercus ilex* subsp. *ballota*.

As we mentioned in a previous paper (MORENO & HEYKOOP 1998), the Iberian mediterranean vegetation is very interesting from a mycological point of view, since these plant communities host many characteristic mycorrhizal and saprotrophic fungi. On the other hand, recent studies on *Mycena* carried out by us and by other authors (ESTEVE-RAVENTÓS & VILLARREAL 1997; MORENO & HEYKOOP 1998; VILLARREAL & al. 1998, 1999) have proved that there still occur many undiscovered or rare species in this genus in our country. In this contribution to the study of Iberian mediterranean areas, and more specifically of the Sierra of Aracena (Huelva), we illustrate a rare *Mycena* species fruiting on dead leaves of *Quercus ilex* L. subsp. *ballota* (DESF.) SAMP.

Mycena gladiocystis was described as a new species by ESTEVE-RAVENTÓS & ORTEGA (1999) also from Andalucía. Our report is the second one of this new mediterranean species and gives the first habit illustration in colour.

The material of *Mycena gladiocystis* is kept at the herbarium of the University of Alcalá (AH) and in the private herbarium of Dr MAAS GEESTERANUS in The Netherlands.

***Mycena gladiocystis* ESTEVE-RAVENTÓS & ORTEGA 1999**, Mycotaxon 71: 99-100, (Colour fig. II, Figs. 1-11).

Characters:

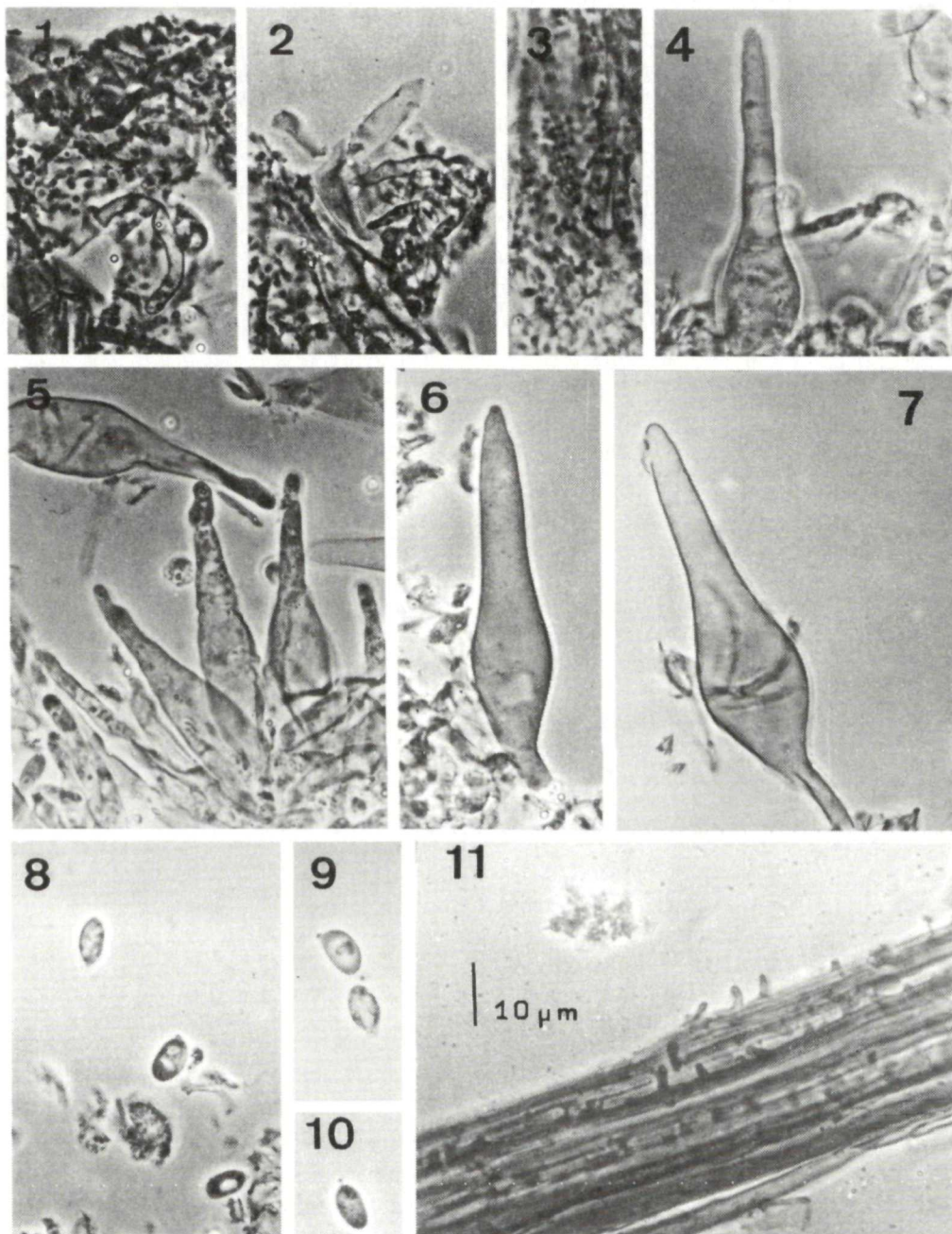
Basidiomata gregarious. Pileus 3-5 mm in diam., convex to hemispherical, hygrophanous, translucently striate, pale brown to brown, darker at the centre. Gills 14-19 reaching the stipe, ascending, with a tooth decurrent, lamella-edge concolorous, slightly arcuate especially in dried specimens, whitish, with lamellulae. Stipe 20-30 x 0.3-0.6(-1) mm, cylindrical, flexuous, slightly pruinose, concolorous with the pileus, paler at the apex, in dry specimens showing slightly greenish tinges, covered in its lower part with radiating white fibrils, context thin, whitish. Odour and taste not distinctive.

Spores 7.5-9.26-10.9(-11) x 4-5.05-6 μ m, $Q = 1.50-1.85-2.25$ ($n = 21$), ellipsoid, smooth, amyloid (Figs. 8-10). Basidia tetrasporic, 19-22 x 7-9 μ m, broadly clavate, sterigmata up to 5 μ m in length. Cheilocystidia 45-80 x 10-15 μ m, hyaline, with clamp connections, lageniform to fusiform (Figs. 5-7), smooth, very abundant (visible under lens!) and forming a sterile band (lamellar edge homogeneous). Pleurocystidia abundant (visible under lens!), similar to cheilocystidia in shape and size. Hymenophoral trama strongly dextrinoid. Hyphae of pileipellis 2-4.5 μ m wide, with clamp connections, densely diverticulate (Figs. 1-3), with simple or branched cylindrical excrescences 10-15(-25) x -1.5 μ m, tending to grow out to much longer and profusely branched structures which are entangled, dissociating with difficulty when mounted under the microscope, not embedded in gelatinous matter. Hyphae of the stiptipellis -4.5 μ m wide, with clamp connections, not embedded in gelatinous matter, densely covered with cylindrical excrescences 2-5 x 2 μ m (Fig. 11). Terminal cells of the cortical layer of the stiptipellis not observed.

Habitat: on dead leaves and wood of *Quercus ilex* subsp. *ballota*.

Material examined: Spain: Huelva, Aracena, Finca la Higuera, on dead leaves and wood of *Quercus ilex* subsp. *ballota* (= *Q. rotundifolia* LAM.), 16. 11. 1997, leg. G. MORENO, L. ROMERO DE LA OSA, J. M. RUIZ & M. ROMERO, AH 19713.

Observations: *Mycena gladiocystis* is a member of sect. *Fragilipedes* (FR.) QUÉL., characterized by its very small habit, lageniform to fusiform smooth cheilo- and pleurocystidia and foliicolous habitat. Nevertheless, its inclusion in this section is not without some doubts. Its very small habit and characteristic foliicolous habitat on leaves of *Quercus ilex* pointed, at first sight, to sect. *Polyadelphia* SINGER ex MAAS G. Moreover, when it was collected we thought it might represent *Mycena quercophila* ESTEVE-RAVENTÓS & VILLARREAL, a very similar species from a macroscopical and ecological point of view (ESTEVE-RAVENTÓS & VILLARREAL 1997). *Mycena gladiocystis* differs, however, from the latter in having smooth lageniform pleurocystidia, which excludes it from sect. *Polyadelphia*. In addition all other microscopical characters are different. On the other hand, in a recent study (VILLARREAL & al. 1999) we came to the conclusion that all species of sect. *Fragilipedes* have invariably ascending lamellae, with their lamellar edge ventricose, whereas sect. *Insignes* MAAS G. emend. VILLARREAL, HEYKOOP & MAAS G. - a closely related section - includes species having invariably arcuate lamellae. In the latter study we thought that the delimitation be-



Figs. 1-11. *Mycena gladiocystis*, AH 19713. 1-3. Hyphae of the pileipellis. 4. Pleurocystidium. 5-7. Cheilocystidia. 8-10. Spores. 11. Stipitipellis.

tween both sections became sharper taking into account as differentiating characters the lamellae and lamellar edge. However, *M. gladiocystis* presents slightly arcuate lamellae but, because of its non gelatinised pileipellis and stipitipellis it does not belong to sect. *Insignes* whose members all show hyphae of both pileipellis and stipitipellis embedded in gelatinous matter (cf. MAAS GEESTERANUS 1989; MAAS GEESTERANUS & MEIJER 1997). So, maybe this feature is transitional between both sections.

Nevertheless, it seems as if the full variability of this *Mycena* species is not yet completely known. In contrast to ESTEVE-RAVENTÓS & ORTEGA (1999) we neither observed thick-walled cheilo- or pleurocystidia with yellowish exsudates nor a gelatinous cover of the pileipellis in our collection. But it was due to these features that ESTEVE-RAVENTÓS & ORTEGA (1999) placed the species in sect. *Insignes*. They discuss the sectional placement further. They also considered to include it in sect. *Carolinenses* MAAS G. which comprises species with thick-walled pleurocystidia.

Following the key to sect. *Fragilipedes* (MAAS GEESTERANUS 1988) we arrive to key number 6 where *Mycena gladiocystis* keys out as *M. alcaliniformis* (MURRILL) MURRILL, a completely different species because of its habitat on fallen conifer logs and other coniferous debris, differently shaped cheilocystidia and lack of pleurocystidia.

Microscopically *Mycena gladiocystis* is similar to *Mycena cyrnea* MAAS G. and *M. gilvipes* VILLARREAL, HEYKOOP & MAAS G. in having typical lageniform to fusiform pleuro- and cheilocystidia. The differences between these species are given in Table 1.

Table 1. Comparison between *Mycena cyrnea*, *M. gilvipes* and *M. gladiocystis*

	Odour	Cheilocystidia morphology	Cheilocystidia length	Pileus margin	Hyphae of the pileipellis	Habitat
<i>M. cyrnea</i>	not recorded	fusiform to subcylindrical with obtuse tip	40-70 µm	dingy pink	very sparsely diverticulate	Terrestrial
<i>M. gilvipes</i>	strongly nitrous	fusiform to lageniform, rarely ramified at apex	80-110 µm	without pink	densely diverticulate	on needles of <i>Pinus pinaster</i>
<i>M. gladiocystis</i>	not distinctive	lageniform to fusiform with acute and non-ramified apex	45-80 µm	without pink	densely diverticulate	Follicolous on leaves of <i>Quercus ilex</i>

What concerns the ecology, the type collection was also found growing on leaves of *Quercus ilex* subsp. *ballota*. Thus, *M. gladiocystis* indeed seems to be a new member of the group of foliicolous *Mycena* species occurring on *Quercus ilex* leaves, as, e.g., *M. adscendens* (LASCH) MAAS G., *M. mucor* (BATSCH: FR.) GILLET, *M. quercophila* ESTEVE-RAV. & VILLARREAL, *M. quercus-ilicis* KÜHNER and *M. smithiana* KÜHNER (ESTEVE-RAVENTÓS & ORTEGA 1999).

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