Urnula mediterranea (Pezizales), a rare species, recorded in Greece

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Introduction

Recently amateur mycologists, guided by George Konstantinidis, made by their discoveries and recordings a significant contribution to the mycological wealth of Greece. Unfortunately, only a small part of all recordings is being published in mycological journals, mostly presenting hypogeous fungi. Therefore, after the publication of Zervakis' work (ZERVAKIS et al., 1999), which seems to be one of the most complete descriptions of Ascomycetes in Greece, the above species is recorded in Greece for the first time. Among the species belonging to the Sarcosomataceae, U. mediterranea (M. Carbone, Agnello & Baglivo) M. Carbone, A. Melastoma et al. have to be added to the species already described in the genus Ulnula (Carbone et al., 2009). The specimens were growing on rotting wood of Quercus ilex, on rotten twigs of Quercus ilex, on rotten twigs of Q. coccifera, Carpinus sp., Acer sp. and Quercus sp., 07.05.2014, leg. F. Litourgis, det. V. Kaounas, preserved in personal herbarium TT 1511; Epirus, 12.06.2011, leg. P. Toufides, det. C. Agnello & G. Konstantinidis, preserved in G. Konstantinidis herbarium GK7565. ITALY, Brindisi (locality of the type), on rotten twigs of Q. ilex, 06.05.2014, leg. and det. C. Agnello, preserved in personal herbarium VK 3402.

Materials and Methods

The macroscopic study was conducted by observation of fresh specimens. Microscopic observations were conducted under a binocular microscope Olympus ECEBi and a Nikon Eclipse E100, with achromatic lenses (4× 10× 40× 100× oil immersion). Microscopic observations were conducted under a binocular microscope Olympus ECEBi and a Nikon Eclipse E100, with achromatic lenses (4× 10× 40× 100× oil immersion). Microscopic observations were conducted under a bi-

Taxonomy

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Description

Asccorps cup-shaped, subsphaerical-oval, stipitate, 2–4.2 (–8) cm in diameter and 2.3–5 cm high without the stem, slightly wrinkled, with scattered tubercles, giving a rough touch, and with a toothed margin. External surface slim, velvety, dark red orangey, smooth, showing areas with dark tubercles, formed by the high concentration of setae, wrinkled near the stipe, with a fringed margin. Hymenium wizened, dark red to brick red, blackish brown at maturity, sometimes showing shades of rust. Stipe barren, elongated, 1.5–3.2 (–4) × 0.5–1.2 (–2) cm, consistent with the cup, with plenty black mycelial hairs on the lower part, which embed plant residues from the substrate. Flesh gelatinous, more or less greyish or ochraceous, outer part dark brown blackish, more or less greyish, blackish in maturity; no odor, nor taste. Spore print creamy white.

Asci 480–600 (–630) × (11–) 13–16 (–17) μm, thick-walled × 1–1.5 μm, 8-spored, cylindrical, with an aporhynchous base, inamyloid. Ascospores ellipsoid, 26–33 × 11–15 μm, hyaline, smooth, with 2–5 evident drops and many other small scattered ones, thick-walled × 1–1.5 μm. Often, a gelatinous gel sheath is to be seen on the external surface of the spores. Paraphyses protruding from asci 2–3 (–5) μm, cylindrical, septate, branched at the bottom, while vertical ramifications are observed in the upper surface, with curved or helical ridges and tiny yellowish specks (with green-yellow colour in Melzer's reagent). Hymenial hairs 3–4 (–6) μm in diameter, cylindrical, simple with a blunt tip or curved. Subhymenium 150 μm thick, composed by cylindrical, muddled hyphae, 3–5.7 μm wide. Medullary excipulum up to 1200 μm thick, composed of entangled, narrow and forked hyphae, 4–7 (–10) μm wide, sparsely arranged in the middle. Ectal excipulum 200–300 μm thick, composed of brown cells 8–13 × 12–16 μm, forming a textura subglobulosa-angularis to angularis, with crystalline deposits. It contains two types of hairs: In the middle part, the hairs measure 3–4 μm in diameter and appears mostly subhyaline, coated with brown crystals of various sizes; in the outermost layer, the hairs measure (3.5–) 5–8 (–8.5) μm in diameter and are septic, thick-walled, smooth, with blackish brown pigment that produces an uniform colour.

Habitat: The specimens were growing on rotting wood of Quercus spp.

Summary: Description and illustration of Urnula mediterranea recently and newly registered in Greece. Several specimens collected in two different Greek areas are reported, and accompanied by illustrations of both macro- and microscopic features.

Keywords: Ascomycota, Sarcosomataceae, Greece, taxonomy.

Περίληψη: Περιγραφή και απεικόνιση της Urnula mediterranea που πρόσφατα καταγράφηκε για πρώτη φορά στην Ελλάδα. Άρκετα δείγματα συλλέχθηκαν σε δύο διαφορετικές Ελληνικές περιοχές όπου αναφερθηκαν και συνδέονται από απεικονίσεις τόσο με τα μάκρο όσο και με τα μικροσκοπικά χαρακτηριστικά.
Plate 1 – *Urnula mediterranea*

a: Ascocarp on *Quercus ilex* wood, coll. 12.04.2013 (sample not preserved); b: Studied specimen from the same place, coll. 07.04.2014. c, d: Ascocarps in forest with *Q. coccifera*, coll. 07.05.14. e, f: Ascocarps in forest with *Q. coccifera*, coll. 09.05.2014. g, f: The largest ascocarp that has ever been found until now, coll. 06.05.2014. Photos: a, b: F. Litourgis; c, d, e, f: V. Nakas; g, h: C. Agnello.

Plate 2 – Known distribution of *Urnula mediterranea*

A: microscopically studied collections (in some cases even phylogenetically). B: only macroscopically determinated collections. 
(A) Brindisi (Italy), since May 2009 several collections each year, leg. C. Agnello; Collserola, Barcelona (Spain), May 1991, leg. M. Tabares; Castel di Decima, Roma (Italy), April 2004, leg. M. Cittadini [sub *Sarcosoma globosum* (Schmidel : Fr.) Casp.]; Santadi, Cagliari (Italy), May 2007; Ioannina (Greece), June 2011, leg. P. Toufidis; leg. E. Mendolia; Saintes (France), May 2012, leg. P. Tanchaud; Acquapendente, Viterbo (Italy), June 2013, leg. G. Gelsomini; Corfù (Greece), April 2014, leg. F. Litourgis; Ioannina (Greece), May 2014, leg. V. Nakas; Kragujevac (Serbia), May 2014, leg. N. Lukić; Fontenoce di Recanati Macerata (Italy), May 2014, leg. E. Carassai. Besides these collections we know through the web or from photos and personal communications, of two different collections from Corsica and two from Tuscany (B): All these collections from macroscopic point of view show the main features of *U. mediterranea*. 
Plate 3 – Urnula mediterranea. Microscopic characters
Discussion

In CARBONE et al. (2009) an historical review of the genus Plectania Fuckel and related genera was proposed according to the opinions of several authors. Due to the macro- and microscopic features, Urnula mediterranea was placed in the genus Plectania at first.

Subsequently, CARBONE et al. (2013) made a complete phylogenetic comparison within the family of Sarcosomataceae Kobayasi. The results showed that *P. mediterranea* belongs to the *Urnula* clade, and the new combination in *Urnula* Fr. was introduced.

By many features, this species is easily distinguishable, especially when the specimens are not too mature. Indeed the closest species seems to be the non-European *U. campylospora* (Berk.) Cooke, which, however, has a hymenium with a different color and different microscopic characters, e.g. curved ascospores. (CARBONE & AGNELLO, 2013).

Among European species, *U. craterium* (Schwein.) Fr. has asccarps 2–5 cm wide and 3–6.5 cm in height, with a short or long stipe (1–4 × 1–2 cm); the hymenium is smooth, blackish brown with violet or russet tinges, dull or slightly glossy, and the external surface is blackish brown; ascospores are ellipsoid (21–) 25–33 (–36) × (9–) 11–14 (–14.5) μm. *U. hiemalis* Nannf. has hemispherical to funnel-shaped asccarps, 1–5 cm diam. and 2–5 cm height, with or without a short stipe, a smooth blackish brown or blackish hymenium, external surface rugged and napped, concolorous with the hymenium but with light to dark shades of copper, and ascospores ellipsoid to subcylindrical, 24–31 (–32) × (10.6–) 12–15 μm. *U. groenlandica* Dis- sing, described from Greenland, is a smallest species, sessile, with a dark brown hymenium, often reddish at periphery, external surface dark brown, and with ellipsoid to ovoid ascospores, 21.5–25.7–27.1 × 10.0–11.2–13.2 μm.

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References