First record of *Mayamontana coccolobae* (Stephanosporaceae: Agaricales) from Mexico

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Abstract

*Mayamontana coccolobae* Castellano, Trappe and Lodge is described for the first time from Mexico and the second time worldwide. It is characterized by the orange, subhypogeous basidioma and the wrinkled subglobose spores with conspicuous hilar appendix. It is not a very common species in the region and is recorded from disturbed lowland forest and urban gardens. *Mayamontana coccolobae* was only known from the type locality but now extends its geographical distribution to southeast Mexico.

Key words – Macrofungi – Truffles – Truffle-like Fungi – Yucatán Peninsula

Introduction

Stephanosporaceae Oberw and E Horak includes hypogeous and resupinated fungi, distinguished by ornamented spores with a crown-like structure composed by pyramidal spines (Vidal 2004). Stephanosporaceae currently comprises 8 genera and 37 species all over the world (Kirk et al. 2008). Despite its worldwide distribution, it is poorly known in Mexico where is only represented by one single species: *Stephanospora michoacanensis* Guevara and Castellano (Guevara et al. 2015).

*Mayamontana coccolobae* Castellano, Trappe and Lodge was described from the mayan mountains in Belize growing under *Coccoloba belizensis* Stand and *Neea* sp. This species is characterized by a bright orange peridium and spores with conspicuous hilar appendage, absent in other sequestrated taxa (Castellano et al. 2007). Although *M. coccolobae* lacks ornamented spores, recent molecular evidences place *M. coccolobae* within the Stephanosporaceae, closely related to *Stephanospora* Pat and the resupinated fungi *Lindtneria trachyspora* Bourdot and Galzin Pilát (Lebel et al. 2015).

During mycological explorations in southern Campeche and Quintana Roo in the years 2015 and 2017 in the Yucatán peninsula, several hypogeus fungi with orange peridium where collected under *Byrsonima crassifolia* (L.), *Coccoloba diversifolia* Jacq, *Coccoloba spicata* Lundell, *Gymnopodium floribundum* Rolfe and *Haematoxyllum campechianum* L. The morphological and microscopical features match well with those from *M. coccolobae* and it represents the first record from Mexico and the second record worldwide.
Materials & Methods

Basidiomata were collected at Calakmul municipality in Campeche state and urban gardens from Chetumal city in Quintana Roo state, Mexico. The vegetation is a disturbed lowland forest with Coccoloba diversifolia Jacq., Metopium brownei (Jacq.) Urb., Haematoxylon campechianum, Gymnopodium floribundum Rolfe and Acoelorrhaphe wrightii (Griseb. & H. Wendl.) H. Wendl. ex Becc. (Valdés & Islebe 2011) and urban gardens with C. spicata and B. crassifolia. The traditional collecting, sampling and describing methods for sequestrated fungi were used (Castellano et al. 2004). Hand cuts sections were made in dried specimens mounted in KOH 5%, Congo Red and Lugol for microscopic description. The handbook of color (Kornerup & Wanscher 1978) was used for the color terminology. All the specimens were herbarized and deposited at mycological herbarium “José Castillo Tovar” of Instituto Tecnológico de Ciudad Victoria (Index Herbarium ITCV).

Results

Six M. coccolobae fruiting bodies were collected at Calakmul municipality in Campeche state and urban gardens in Chetumal city in southern Quintana Roo state, Mexico. A taxonomic description, discussion, distribution and photographs of the species are provided.

Mayamontana coccolobae Castellano, Trappe & Lodge. Figs 1–4

Basidiomata subhypogeous, scattered, 11–16 mm, globose to subglobose, without rhizomorphs or columella. Peridium cadmium orange (5A8) to deep or bright orange (6A8), rugulose to wrinkled, wet, dehiscent, sometimes showing the locules inside. Gleba brittle, pale orange to yellowish (5B5) with rounded to slightly elongate locules reaching 1 mm, odor and taste slightly fungoid.

Peridium 94–126 µm wide, with subparallel, interwoven, globose and inflated hyphae 5.5–16 µm diam, hyaline, orange or bright yellow in KOH 5%, thin-walled or with irregular walls, without clamp connections. Hymenophoral trama 39–50 µm wide, with inflated hyphae 4.2–14.3 µm, hyaline or bright orange in KOH, thin-walled. Basidia clavate to subclavate, 20–26 × 9–11 µm, hyaline, 2-spored to 4-spored, thin-walled, collapsing after spore development. Basidiospores broadly ellipsoid to ovoid, 7.8–11.4 × 6.4–8.4 µm (L=9.573, W=9.475, Q=1.009, N=30), with conspicuous hilar appendix reaching 3 µm long, sometimes flattened in one side, hyaline or pale green in KOH 5%, slightly wrinkled, thin-walled.

Known distribution – known from the Mayan mountains in Belize, Southern Quintana Roo and Campeche State, Mexico.


Notes – Morphological characters of Mexican collections are very similar to those quoted by Castellano et al. (2007) except the basidiomata size, being the Mexican material bigger (6–8 mm vs 11–16 mm). Mayamontana coccolobae has been reported in association with C. belizicensis and Neea sp. The Mexican specimens were found growing under C. spicata, C.diversifolia, G. floribundum and H. campechianum always in disturbed vegetation. Rinaldi et al. (2008) consider M. coccolobae as an ectomycorrhizal fungus but according to recent molecular data from Tedersoo et al. (2010) there is no evidence that M. coccolobae forms a mycorrhizal association despite growing under ectomycorrhizal host trees.

The weather and vegetation of southern Mexico is very similar to that of Belize (Durán et al. 2000) and according to our field observations, is very possible that M. coccolobae expands his current distribution to all along the Yucatan peninsula (Fig. 5). It is important to remark that all the specimens were found in disturbed vegetation, urban gardens and near paths in the forest and despite more mycological exploration were conducted in well stabilized forest no basidiomata were
found, this could indicate a preference of *M. coccolobae* for disturbed vegetation or secondary forest.

Figs 1–4 – *Mayamontana coccolobae*. 1 Basidiomata and Gleba. 2 Basidiospores. 3 Trama. 4 Peridium cells (Bar: 1, 1 cm; 2, 10µm).
Fig. 5 – Current distribution of *Mayamontana coccoloba* in Mexico.

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