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First record of *Podaxis pistillaris* (Basidiomycetes, Agaricaceae) in the Dominican Republic

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Abstract: *Podaxis pistillaris*, a species widely distributed in desert and semi-desert habitats worldwide, is reported for the first time from the Dominican Republic. Although the spore size is slightly smaller than the expected range, all other characteristics, including the sand-dwelling habitat, are consistent with this taxon. An ITS sequence also supports this identification.

INTRODUCTION

Based on unconfirmed reports of the presence of "desert mushrooms" in the Dominican Republic, one of us, C. A., after extensively searching for fungal species belonging to the genus *Podaxis* Dev. in various arid, sandy or semi-desert areas, finally found it fruiting in abundance in a sandy area close to the north-western Dominican ocean coast, adjacent to the Estero Hondo Marine Mammal Sanctuary in the province of Porto Plata. Initially, this species of *Podaxis* was thought to be specific to the Neotropics; however, subsequent morphological and molecular studies revealed that it belongs to the most widely distributed species worldwide, *Podaxis pistillaris* (L.) Fr. This was also confirmed by a recent and comprehensive study on the genus *Podaxis* conducted by Li *et al.* (2023), which, on a phylogenetic basis, demonstrated the presence of this species in the Caribbean (Jamaica) and Central America (Mexico).

MATERIALS AND METHODS

Fresh basidiomata of the Dominican collection were photographed in situ by C. A. using a Nikon Coolpix 8400 camera and immediately dried thereafter. Macroscopic characters were observed from the photographs. Microscopy was performed by P. V. Micrographs of the spores were made from dried material suspended in water using a Nikon Coolpix A10 camera and a binocular Leica microscope DME.

TAXONOMY

Podaxis pistillaris (L.) Fr. (as '*Podaxon pistillaris*')

Syst. Mycol. (Lundae) 3(1): 63 (1829)

Synonyms: see Li *et al.* (2023)

Macroscopic characters

Basidiocarp secotioid, stipitate, 100–250 mm tall, dry, indehiscent at maturity.

Pileus 40–95 mm in height × 25–45 mm diam at maturity, narrowly ellipsoid to paraboloid, white to pale cream, dry; surface shiny, consisting of an initially persistent membranaceous peridium; peridium margin initially adherent to the stem and breaking at maturity into fibrous scales to release spores.

Lamellae absent, basidiospore-producing tissue filamentous-powdery, initially white in colour, then yellowish-olive green, yellowish ochre-brown to dark brown to almost black.

Stipe 100–220 × 10–15 mm at maturity below the pileus, cylindrical with a bulbous base; dry, hard and woody, spiral, fibrous, striate or broken into fibrous scales; white to yellowish brown staining bright red. *Annulus* and *volva* absent.



Podaxis pistillaris in habitat. ANGE1866

C. Angelini



Podaxis pistillaris in habitat. ANGE1866

C. Angelini

Microscopic characters

Spores (8.3)9.0–10.6(12.8) × (7.7)8.3–9.5(11.3) μm , $Q = 1.01\text{--}1.14$, those well pigmented mostly regularly subglobose to globose or sometimes obovoid, those immature-hyaline varying to ellipsoid or deformed; thick-walled and with another distinct inner wall 6–9 μm inside; the most pigmented darkish brownish-orangish in water; spore print light yellowish-olivaceous; germ pore swollen and with a distinct medulla up to the inner wall; without apiculus.

Collections examined and Habitat: Dominican Republic, province of Puerto Plata, municipal district of Estero Hondo, in the protected area of the Estero Hondo Marine Mammal Sanctuary, gregarious in an arid-sandy area close to the ocean coast, 24 March 2023, C. Angelini ANGE1866 (JBSD141869), GenBank acc. no. UDB07674839.

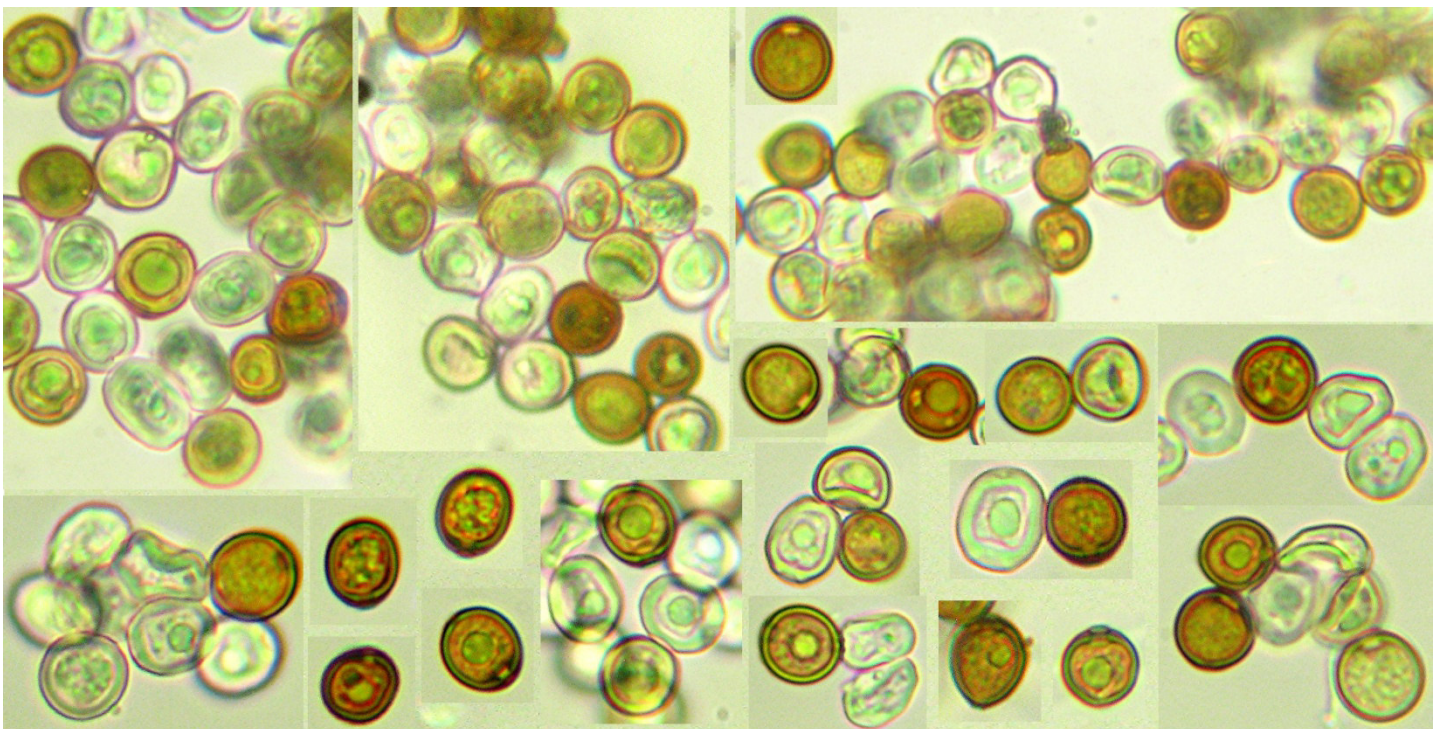
NOTES

The spore range of our collection was carefully studied to determine whether it was morphologically comparable with taxa of *Podaxis* sect. *Parvispora* McKnight (McKnight 1985), especially with *P. argentinus* Speg. and *P. longii* McKnight reported from Central and Southern America. To date, neither of these two species has any molecular data and consequently no phylogenetic comparison could be made. However, *P. argentinus* has distinctly smaller spores with an indistinct germ pore; while *P. longii*, though having somewhat comparable but averagely smaller spores [(5.5)6–10(13) × (4.4)5–8 μm] with a smaller germ pore (0.9–1.1 μm broad), differs in distinctly larger basidiomes (150–450 mm long with 15–40 mm broad stipes) and an equal to tapering, not swollen stipe base (McKnight 1985).



Podaxis pistillaris, section of the basidiomes. ANGE1866

C. Angelini



Podaxis pistillaris, spores in water. ANGE1866

P. Voto

Li *et al.* (2023) report the spores of *P. pistillaris* as $(6.9)9.8\text{--}12.0(19.9) \times (6.1)9.0\text{--}10.4(18.5) \mu\text{m}$ (*Podaxis* sect. *Podaxis*). Our measurements are placed right at the lower level of this range probably because the specimens studied were not fully mature. The ITS sequence obtained from our collection places it fully in the large ‘clade 1’ that Li *et al.* (2023) recognise as representing *P. pistillaris* and which contains vouchers from Central and South America (Brazil, Ecuador, Jamaica, Mexico and Venezuela).

REFERENCES

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