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Lepista nuda (Bull.) Cooke (Basidiomycota: Tricholomataceae): A new record for Egypt

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ABSTRACT

Arab society for fungal conservation designed a series of mycological expeditions to underpin the achievement of specific fungal conservation aims. In 2013, the expeditions were operated for the first time in Egypt in which various habitats were screened in Nile Delta. Macrobasidiomycete specimens were collected from El- Sanania (Damietta) many times since February 2013. According to the current study, *Lepstia nuda* is recorded for the first time in Egypt. The new record is illustrated and briefly described below. Dried basidiomata and pure culture of *L. nuda* were deposited in the Fungarium of Arab Society for Fungal Conservation, Suez Canal University, Egypt.

Key Words: Conservation, Fungarium, Macrofungi, Mohamed bin Zayed, Mycobiota.

INTRODUCTION

Arab Society for Fungal Conservation (ASFC) decreed by No. 699/2013 as a scientific and cultural society aims to promote, protect and develop ecosystems & wildlife habitats and its biotic components especially fungi in Egypt (http://fungiofegypt.com/ASFC.html). ASFC aims to raise awareness on the importance of fungal conservation and access to more economic sustainable methods harmonious with nature and human life in the Arab world.

The study of macrobasidiomycetes in Egypt is very rare and limited because members of the group were either overlooked during investigations or never been the sole target of any investigation before until the society designed a series of mycological expeditions to survey the fungus conservation status in the whole country of Egypt. The expeditions were operated for the first time in Nile Delta during the period of December 2013 to April 2015 to survey macrobasidiomycetes and supported by Mohamed bin Zayed species conservation fund.

Critical macro- and micro-morphological studies of this fungus followed by thorough literature survey, reveals it, as *Lepstia nuda*, an unrecorded taxon for Egyptian mycobiota. A detailed description coupled with the illustrations of this species is presented here.

MATERIALS AND METHODS

The present study was based on specimens collected many times from different *Citrus* fields in El- El-Sanania area, Damietta Governorate, north

east of Egypt (N 31o 26 ′ 18.6 ″, E 31 o 46′ 32.3″) during the period of December 2013 to April 2015. Mature basidiomata were collected during different developmental stages. Some basidiomata were cut and put in a plastic bag to obtain spore prints and the rest of them were dried for future studies and deposited at the Fungarium of Arab Society for Fungal Conservation, Suez Canal University, Egypt.

Some microscopic studies were performed at the laboratory of Systematic Mycology, Suez Canal University, Egypt according to Clémençon (2009). The microscopic characteristics were observed with the Leitz Research microscope (Laborlux S) and microscopic photos were taken with HD USB electronic digital eyepiece camera. Fungal material was mounted on a microscope slide and examined in water using a light field microscope with phase contrast at ×20 and ×40. For statistical calculations, 100 basidiospores and basidia were measured for every preparation. Identification of the collection and descriptions were made following Butler 1981, 2004.

Collected basidiomata and tissue inner cores were sterilized 10–20 seconds in hydrogen-peroxide 30% v /v. Sterilization was stopped by placing tissues in sterile distilled water. Surface sterilized tissues were cultured in a modified BDS selective media (Harrington *et al.* 1992). Plates were incubated in the dark at room temperature (25 ^{o}C), and once any mycelial growth was observed, we transferred the isolate to malt extract agar medium. Name corrections, authorities, and taxonomic assignments of this work were checked against the Index Fungorum database (www. indexfungorum.org).

RESULTS

The genus *Lepista* is accepted as a distinct genus in the sense of Singer 1975, with three sections: *Lepista, Nuda* and *Gilva* (Harmaja 1978). According to the 10th edition of the *Dictionary of the Fungi* (Kirk *et al.* 2008), the widespread genus contains about 50 species. According to Mycobank (Anonymous 2015), to date nearly 118 *Lepista* species were recorded all over the World. Up to the present study, no *Lepista* species were recorded in Egypt at all (Abdel-Azeem 2010).

TAXONOMIC DESCRIPTION

Lepista nuda (Bull.) Cooke, Handb. Brit. Fungi 1: 192 (1871) **Figs. 1–3**

Fungi, Basidiomycota, Agaricomycotina, Agaricomycetes, Agaricomycetidae, garicales, Tricholomataceae) has forty two synonymous names (Kew Mycology 2013).

= *Agaricus bicolor* Pers., Syn. meth. fung. (Göttingen) 2: 281 (1801); *A. bulbosus* Bolton, Hist. fung. Halifax, App. (Huddersfield): 147 (1792) [1791]; *A. nudus* Bull., Herb. Fr. 10: tab. 439 (1790); *A. nudus var. aggregatus* Pers., Mycol. eur. (Erlanga) 3: 224 (1828); *A. nudus var. allochrous* Pers., Mycol. eur. (Erlanga) 3: 224 (1828); *A. nudus var. majus* Cooke, Handb. Brit. Fungi, 2nd Edn: 41 (1883); A. nudus Bull., Herb. Fr. 10: tab. 439 (1790) var. nudus; A. nudus var. praticola Alb. & Schwein., Consp. fung. (Leipzig): 152 (1805); *A. nudus var. sylvaticus* Alb. & Schwein., Consp. fung. (Leipzig): 152 (1805); *A. tyrianthinus* Fr., Icon. Desc. Fung. Min. Cognit. (Leipzig) 2: 91 (1818); *Clitocybe nuda* (Bull.) H.E. Bigelow & A.H. Sm., Brittonia 21(1): 52 (1969); *Cl. tyrianthina* (Fr.) Sacc., Syll. fung. (Abellini) 5: 147 (1887); *Collybia lilacea* Quél., Mém. Soc. Émul. Montbéliard, Sér. 2 5: 434 (1875); *Col. lilacea var. distantelamellata* Rick, Lilloa 2: 273 (1938); *Col. lilacea* Quél., Mém. Soc. Émul. Montbéliard, Sér. 2 5: 434 (1875) *var. lilacea*; *Cortinarius bicolor* Gray, Nat. Arr. Brit. Pl. (London) 1: 628 (1821); *Cort. bicolor* Gray, Nat. Arr. Brit. Pl. (London) 1: 628 (1821) f. *bicolor*; *Cort. nudus* (Bull.) Gray, Nat. Arr. Brit. Pl. (London) 1: 628 (1821); *Gyrophila nuda* (Bull.) Quél., Enchir. fung. (Paris): 17 (1886); *Gyr. nuda* (Bull.) Quél., Enchir. fung. (Paris): 17 (1886) *var. nuda*; *Lepista nuda f. gracilis* Noordel. & Kuyper, Flora Agaricina Neerlandica, vol. 3. A. General Part; B. Taxonomic Part: Tricholomataceae (2) (Rotterdam) 3: 72 (1995); *L. nuda* (Bull.) Cooke, Handb. Brit. Fungi 1: 192 (1871) *f. nuda*; *L. nuda var. lilacina* (Quél.) Singer, Lilloa 22: 193 (1951) [1949]; *L. nuda* (Bull.) Cooke, Handb. Brit. Fungi 1: 192 (1871) *var. nuda*; *L. nuda var. pruinosa* (Bon) Bon ex Courtec., Docums Mycol. 14(no. 56): 56 (1985) [1984]; *L. nuda var. pruinosa* Poisy, Bull. trimest. Féd. Mycol. Dauphiné- avoie 23(no. 92): 18 (1984); *L. nuda var. tridentina* (Singer) Singer, Lilloa 22: 193 (1951) [1949]; *L. nuda var. tucumanensis* Singer, in inger & Digilio, Lilloa 25: 43 (1952) [1951]; *L. nuda var. tyrianthina* (Fr.) Bon, Docums Mycol. 26 (no. 104): 29 (1997); *L. nuda var. violaceofuscidula* (Singer) Singer, Lilloa 22: 193 (1951) [1949]; *Omphalia tyrianthina* (Fr.) Quél., Enchir. fung. (Paris): 21 (1886); *Rhodopaxillus nudus* (Bull.) Maire, Annls mycol. 11(4): 338 (1913); *R. nudus* (Bull.) Maire, Annls mycol. 11(4): 338 (1913) *var. nudus*; *R. nudus var. pruinosus* Bon, Docums Mycol. 5(no. 17): 39 (1975); *R. nudus var. tridentinus* Singer, Annls mycol. 41(1/3): 91 (1943); *R. nudus var. tucumanensis* (Singer) Raithelh., Nueva Flora Micológica Argentina (Stuttgart): 78 (2004); R. nudus var. violaceofuscidulus Singer, Annls mycol. 41(1/3): 92 (1943); *Tricholoma nudum* (Bull.) P. Kumm., Führ. Pilzk. (Zerbst): 132 (1871); *T. nudum var. lilaceum* Quél. *T. nudum var. majus* Cooke & b. Brit. Fungi 1: 41 (1871); *T. nudum* (Bull.) P. Kumm., Führ. Pilzk. (Zerbst): 132 (1871) *var. nudum*; *T. personatum var. nudum* (Bull.)

Rick, in Rambo (Ed.), Iheringia, Sér. Bot. 8: 303 (1961).

SPECIEMENS EXAMINED

Egypt: El-Sanania, Damietta, on the ground, and deciduous wood (5th February 2013, 26th February 2014, 15th March 2014, 9th February 2015) leg. Fatma M. Salem, det. A. M. Abdel-Azeem: *Lepista nuda* (ASFC® 9M-LN).

HABITAT AND GENERAL DISTRIBUTION

This species is primarily leaf litter saprobe. The wood blewit (*Lepista nuda*) is found in Europe and North America and is becoming more common in Australia, where it appears to have been introduced. In the UK, it appears from September through to December. In Africa is recorded in Ethiopia and now in Egypt for the first time.

DESCRIPTION AND DISCUSSION OF SPECIES

MACROMORPHOLOGY

Basidiomes of *L. nuda* were collected in lawns from the city of El-Sanania, Damietta, Egypt. The freshly collected mushrooms presented a lilaceous hygrophanous pileus. Basidiomes growing alone scattered, gregariously, or in clusters in organic debris (Figs. 1 and 2). Cap: 4.5-6 cm; convex with an inrolled margin when young, becoming broadly convex to nearly flat or with an uplifted, wavy margin in age; surface smooth, slightly tacky when moist; sometimes finely cracked over the center; usually dull purple, or purplish with brown shades when fresh, fading to brownish, flesh-colored, tan, or paler--but sometimes brown or buff from the beginning. Gills: Attached to the stem-sometimes by a notch-or beginning to run down it; close or crowded; pale lavender to lilac, fading to buff, pinkish-buff, or brownish. Stem: 5-6.5 cm long; 0.8-1.2 cm thick at apex; equal, or enlarged at the base; dry; finely hairy, and/or mealy near the apex; pale purple or colored like the gills; becoming brownish in age; base often covered with lilac to buff mycelium. Flesh: Thick; soft; purplish to lilac-buff or whitish. Spore Print: Pinkish.

Fig. 1. ***Lepista nuda* –** basidiomata: A- Solatory, B- Clustered.

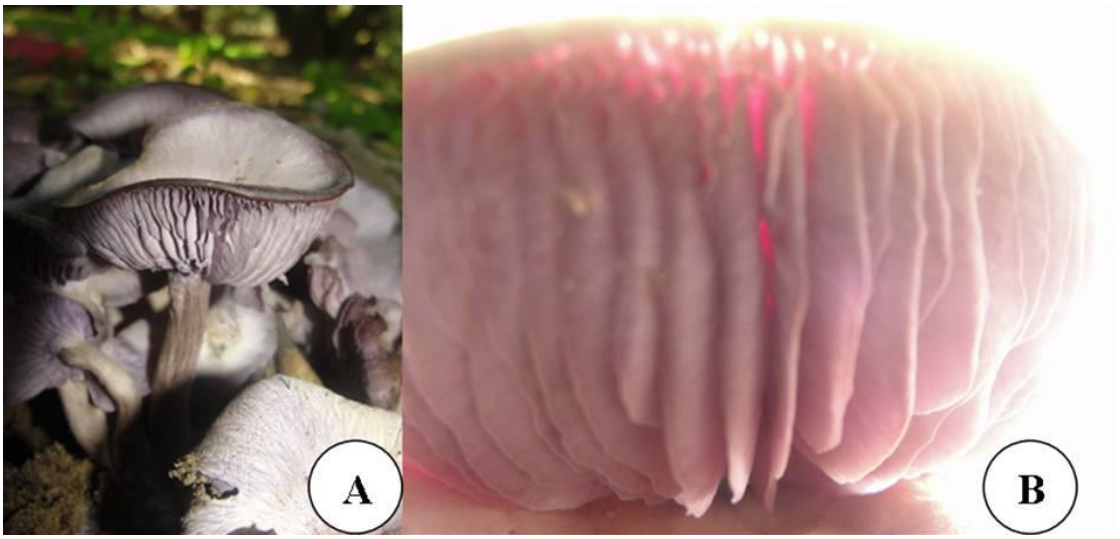

Fig. 2. A- Gills, **B-** Close up of gills.

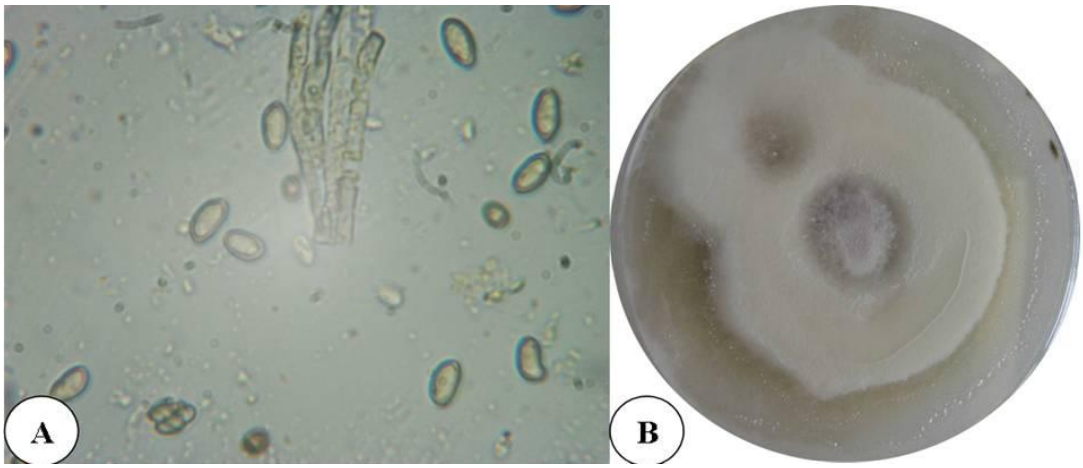

Fig. 3. ***Lepista nuda*** **–** A. spores, B. a pure colony.

MICROMORPHOLOGY

Spores 5.5 (6.25)-8 (8.75) x 2.5-3.5 µ; ellipsoid; smooth; inamyloid. Cystidia absent. Pileipellis a cutis of hyphae 1-3.5 µ wide. Clamp connections present (Figure 3). *Lepista nuda* (Bull.) Cooke, as a new addition, is the only species of the genus recorded for Egypt, occurring in soil and organic debris in El-Sanania, Damietta Governorate. In Africa, *L. nuda* also occurs in Ethiopia (Alemu 2012) only.

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