

Licea pescadorensis, A New Myxomycetes Record for Turkey

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ABSTRACT: In this study, *Licea pescadorensis* Chao H. Chung & C.H. Liu was recorded for the first time from Turkey and added to the myxobiota of Turkey. As a result of laboratory studies we identified this species with moist chamber culture method in laboratory. Fruiting bodies and microscopic structures photographs belonging to new record was taken with light microscopy.

Keywords: *Licea pescadorensis*, Myxomycetes, new record, Turkey

Licea pescadorensis, Türkiye İçin Yeni Bir Miksomiset Kaydı

ÖZET: Bu çalışmada *Licea pescadorensis* Chao H. Chung & C.H. Liu, Türkiye’de ilk defa rapor edilmiş, Türkiye mikrobiotasına ilave edilmiştir. Bu tür laboratuvar çalışmaları sonucunda nem odası tekniği ile laboratuvarda elde edilmiştir. Yeni kayıt örneğe ait fruktifikasyonu ve mikroskobik yapısına ait özellikleri ışık mikroskobu yardımıyla verilmiştir.

Anahtar Kelimeler: *Licea pescadorensis*, Miksomiset, Türkiye, yeni kayıt

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INTRODUCTION

The myxomycetes (plasmodial slime molds) are eukaryotic microorganisms that occur wherever conditions on the earth's surface permit the growth of vegetation but are especially common in forest areas. They can be found, sometimes abundantly, in most terrestrial ecosystems, associated with plants and plant debris (Martin and Alexopoulos, 1969). The fruiting bodies produced by myxomycetes are usually small, with a height of no more than 2 mm (0.1–2 mm) (Lado and Pando, 1997). Because of their small size and the types of situations in which most species occur, myxomycetes tend to be overlooked in nature. However, careful searching of suitable substrates almost invariably reveals several fruiting bodies of myxomycetes in the various microhabitats of a particular ecosystem (Stephenson, 2003).

The family Liceaceae (order Liceales, Myxomycetes) has a single genus *Licea*. The genus *Licea* currently encompasses more than 72 species of worldwide distribution (Lado, 2017) and in Turkey

Licea has got 21 species (Sesli et al., 2016). *Licea* genera includes species with plasmodiocarpic to sporocarpic sessile or stipitate sporophores. Peridium membranous or coriaceous, consisting of one or two layers. The external layer gelatinous when wet, drying horny, the inner always membranous. The external surface frequently with deposits of granular material, the peridium dehiscence can be irregular. Columella, capillitium and the pseudocapillitium are mostly absent. Spores are free, globose, subglobose or ovoid, of variable colour but usually pale, decorated or smooth, and with spore wall of uniform thickness or with a thinner area. The spores are often paler on one side, and smooth or minutely warted (Martin et al., 1983; Liu et al., 2002; Baba and Tamer, 2008).

MATERIAL AND METHOD

In this study natural substrates; barks and debris material, bark of living trees, as well as decaying bark, wood, leaves and litters were collected (Table 1) from Payas-Hatay (Figure 1).

Table 1. Dates and information about localities

Location	Dates	Altitude (m)	Coordinates
Payas	14.04.2014-01.07.2014	39	36°45'50N:36°12'58E

Natural fructifications were gently and directly collected from the substratum and placed in cardboard herbarium boxes. In addition, the fructifications of myxomycetes were grown from the moist chamber culture in the laboratory. The collected substrates were

moistened with distilled water 24 or 48 hours (In winter 24 hours, summer 48 hours). When developing myxomycetes were found, the moist chamber was allowed to dry slowly and the myxomycetes were then dried for one week. (Stephenson and Stempen, 2000; Baba, 2012).



Figure 1. Research area

Microscopic and macroscopic features of the sample was determined in the laboratory. The morphological characters of myxomycetes; fruiting bodies, shape, size and colour, spore size and ornamentation, capillitium colour and branching, lime crystal size and morphology, and stalk colour and proportion. Myxomycetes was identified with the aid of Martin and Alexopoulos (1969), Neubert et al. (1993). The sample was prepared as fungarium material and stored in the laboratory of Department of Biology, Faculty of Science and Arts, Mustafa Kemal University in Hatay.

RESULTS AND DISCUSSION

Superior: Eukarya

Kingdom: Protista

Subkingdom: Amoebozoa

Division: Mycetozoa

Subdivision: Eumycetozoa

Class: Myxogastria

Order: Liceida

Family: Liceaceae

Genera: *Licea*

Species: *Licea pescadorensis* Chao H. Chung & C.H. Liu, Taiwania 41(4):259 (1996)

Sporocarps: densely gregarious or clustered, sessile, 0.06-0.15 mm diam., subglobose, hemispherical or somewhat depressed, deep reddish brown when young, darkening to almost black when mature (Figure 2a). Peridium: composed of two closely adherent layers, the outer layer gelatinous when wet, containing abundant granular refuse material absorbed from the substrate, the inner layer cartilaginous, brownish. Dehiscence: not observed. Columella and Capillitium not seen. Spores: globose to ovoid, pale, almost smooth with evenly thickened walls, either globose and (5-)7-8 μm diam. or ovoid and (7-)8-10 x (6-) 7-8 μm diam., (Figure 2b). Plasmodium: unknown. Hypothallus: inconspicuous or lacking.

Distribution: Payas (Seashore), Isolated from the bark of *Pinus brutia* Ten., Arslan 22.

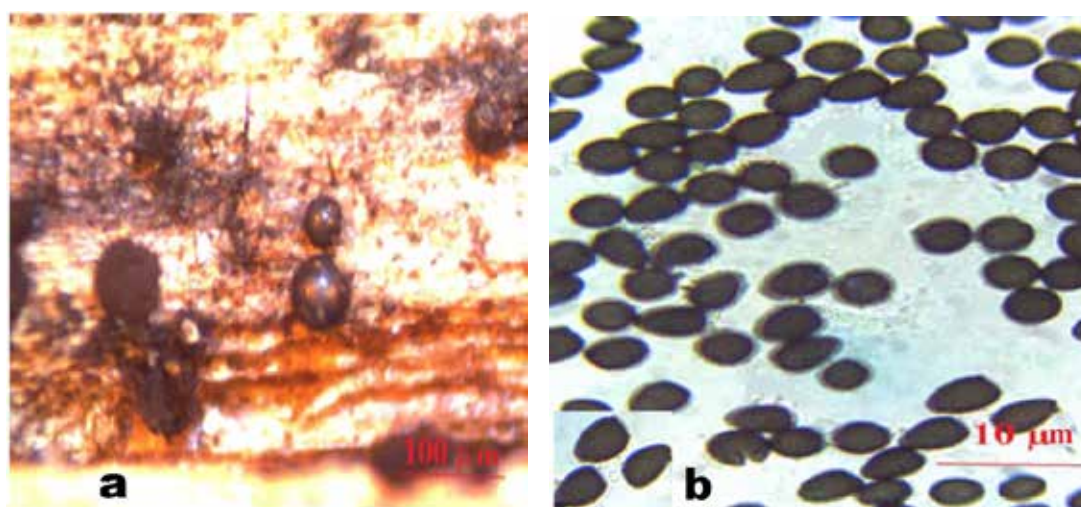


Figure 2. *Licea pescadorensis* Chao H. Chung and C.H. Liu a) Sporocarps b) Spores

Shiny reddish brown to black sporangia of *Licea pescadorensis* are easily distinguished from other fungi or refuse materials. Most of the mature sporangia are dark but rather inconspicuous. Morphological variance among different clusters of sporangia is noticeable. Some sporangia seem to be wrinkled and become angular or with a ridged peridium; others are not wrinkled and smooth in appearance. Most sporangia are almost black when mature, but some sporangia retain their reddish brown pigmentation.

Most species of *Licea* were found on bark of living or dead trees, less commonly on dead wood, hepatics, bryophytes. Some members of this genus have been reported from fimicolous or corticolous habitat (Chung and Liu, 1996; Everhart and Keller, 2008; Barbosa et al., 2016). *Licea tenera*, originally described as corticolous on *Acer*, was emended by Martin and Alexopoulos (1969) to include coprophilous population. Angel and Wicklow (1975) reported *L. fimicola* and *L. tenera* from rabbit, pronghorn and cow dung. Martin & Alexopoulos'

(1969) reported *L. punctiformis* (originally described as corticolous) and *L. tenera* from cow and horse dung. Eliasson and Lundqvist (1979) reported *L. alexopouli*, *L. belmontiana*, *L. fimicola*, and *L. pusilla* from various kinds of animal excrements. Lakhanpal and Mukerji (1981) recorded three fimicolous *Licea*, *L. punctiformis*, *L. tenera* and *L. variabilis* from India (all on horse dung) (Martin and Alexopoulos, 1969; Farr, 1981).

CONCLUSION

As described by Martin and Alexopoulos (1969) and Martin et al. (1983) the family Liceaceae, has a single genus, *Licea*. Previously, 21 species of *Licea* were recorded in Turkey (Sesli et al., 2016). In this paper, we reported a new record *L. pescadorensis*. Description and illustration of *Licea pescadorensis* was made by Chung and Liu (1996), at Taiwan. Specimen examined open dry farmland, on cow dung with moist chamber culture.

This genus includes species with plasmodiocarpic to sporocarpic, sessile or stipitate sporophores, *Licea*

pescadorensis sporocarps are densely gregarious or clustered, sessile. Peridium composed of two layers, the outer layer gelatinous, the inner layer cartilaginous, brownish. The spores of *Licea* are free, globose, subglobose or ovoid, of variable colour but usually pale, decorated or smooth, and with spore wall of uniform thickness or with a thinner area.

Most *Licea* species were harvested from corticolous or fimicolous habitats by moist chamber cultures. *Licea pescadorensis* is characterized by a fimicolous habitats but in our study we collected from corticolous habitat.

This species can be distinguishable from other *Licea* by a densely gregarious, shiny reddish brown to black sporangia, cartilaginous peridium and by smaller sized spores, mostly 7 – 8 µm diameter with evenly thickened walls.

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