

= Protomycena =

Protomycena is an extinct monotypic genus of gilled fungus in the family Mycenaceae , of order Agaricales . At present it contains the single species Protomycena electra , known from a single specimen collected in an amber mine in the Cordillera Septentrional area of the Dominican Republic . The fruit body of the fungus has a convex cap that is 5 mm (0 @. @ 2 in) in diameter , with distantly spaced gills on the underside . The curved stipe is smooth and cylindrical , measuring 0 @. @ 75 mm (0 @. @ 030 in) thick by 10 mm (0 @. @ 39 in) long , and lacks a ring . It resembles extant (currently living) species of the genus Mycena . Protomycena is one of only five known agaric fungus species known in the fossil record and the second to be described from Dominican amber .

= = Discovery and classification = =

The genus is known only from the holotype specimen , a single fruit body (mushroom) currently residing in the private collection owned by Ettore Morone of Turin , Italy . The specimen was collected in one of the amber mines in the Cordillera Septentrional area of the island of Hispaniola , in the Dominican Republic . The amber is believed to date from the Miocene Burdigalian stage , about 20 to 16 million years before the present . It was first studied by a group of researchers consisting of David Hibbett and Michael Donoghue from Harvard University , with David Grimaldi of the American Museum of Natural History . Hibbett and colleagues published their 1997 type description in the American Journal of Botany . The generic name Protomycena is derived from a combination of the Latin proto meaning " first " , and " Mycena " , a modern genus that it resembles . The specific epithet electra was coined by the authors from the Latin for " amber " , in reference to the mode of preservation .

When it was reported , Protomycena electra was the third species of fossil agaric fungus to be described . The two species Coprinites dominicana and Aureofungus yaniguaensis are also known from the amber mines of the Dominican Republic , while the fourth species Archaeomarasmius leggeti is from the older , Cretaceous age New Jersey Amber . With the 2007 publication of a fifth extinct agaric species , Palaeoagaracites antiquus , the minimum age for the Agaricales order was pushed back to the Albian (approximately 100 Ma) .

= = Description = =

The holotype of Protomycena is a single fruit body without any associated structures , preserved in a piece of clear light yellow polished amber approximately 4 @. @ 5 ? 2 @. @ 5 cm (1 @. @ 77 ? 0 @. @ 98 in) wide . The pileus is 5 mm (0 @. @ 2 in) in diameter and has a convex shape , sporting a raised central region (an umbo) . The pale flesh appears yellowish in the amber , and is smooth and glossy , changing to striate and slightly translucent towards the margin . The pileus margin is striated and slightly flared . The gills on the underside of the pileus are broadly attached (adnate) to the top of the stipe , and distantly spaced ? between six and eight gills extend completely from the pileus margin to the stipe . These full @- @ length gills are anastomosed with lamellulae (short gills which do not reach the edge of the stipe from the pileus margin) of varying lengths . The pileus is centered on the curved stipe , which is smooth and cylindrical , measuring 0 @. @ 75 mm (0 @. @ 030 in) thick by 10 mm (0 @. @ 39 in) long . The stipe lacks a ring and rhizoids . The mushroom is preserved with a small liquid and gas @- @ filled bubble , possibly originating from the mushroom itself , which indicates the amber to be very solid and well @- @ sealed .

In Hibbett and colleagues ' 1997 publication , Protomycena was placed in the subfamily Myceneae , which at the time was considered part of the Tricholomataceae family ; Mycena is currently classified in the Mycenaceae family . The placement was based solely on the visible structures , or macromorphology of the fruit body . Many of the features which are typically used to classify species into fungal families and subfamilies are based on microscopic features not visible or preserved in the amber specimen . Consequently , the assignment to Mycena is provisional (the authors also note

certain similarities with extant members of *Marasmius*), and the describing authors leave open the option of treating the genus placement as *incertae sedis* (uncertain placement) within the Agaricales . *Protomycena* is distinct from other amber @-@ preserved mushroom taxa such as *Coprinites* , in the grooved surface of its pileus and its anastomosing gills .