

TWO RARE SPECIES RECENTLY DESCRIBED IN THE GENUS *COMATRICHA*

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ABSTRACT. Two rare recently described species of the genus *Comatricha*. Two species of the genus *Comatricha* recently described as new for the science are studied: *C. meandrispora* and *C. pellucida*. Dates about its morphologic variability and preference regarding its fructification are given. Moreover, the area of its distribution is enlarged. Microphotographs both of sporocarps and more important differential characters under SEM are included.

Key words: Myxomycetes, Stemonitales, *Comatricha meandrispora*, *C. pellucida*, taxonomy, chorology, SEM.

RESUMEN. Dos raras especies de *Comatricha* de reciente descripción. Se estudian dos especies de *Comatricha* recientemente descritas como nuevas para la ciencia: *C. meandrispora* y *C. pellucida*. Se aportan datos sobre su variabilidad morfológica, preferencias en su fructificación y se amplía su área de distribución peninsular. Se incluyen microfotografías de sus esporocarpos y al MEB de sus caracteres diferenciales más importantes.

Palabras clave: Myxomycetes, Stemonitales, *Comatricha meandrispora*, *C. pellucida*, taxonomy, chorology, SEM

INTRODUCTION

The genus *Comatricha* was proposed by Preuss and is characterized by its stalked sporocarps, its stalk fibrous in the base, its globose to cylindrical sporotheca, its capillitium forming a net of slender, dark and branched threads arising along the columella, usually whitout pointed free ends and by its dark and globose spores.

Comatricha pellucida was proposed as a new species for the science in 1992 (MORENO *et al.*, 1992). Its slender, flexuous and very pale capillitium is very different from the other species of the genus *Comatricha*. In consequence, the species must be placed in the subgenus *Laxaria*. Up to the date only the type collection was cited, but recently we have found a very abundant collection of this species on leaves of elm (*Ulmus minor*), the same habitat as the type collection. On the other hand, *Comatricha meandrispora* was described by CASTILLO *et al.* (1993) and it is characterized by its pale and small spores with an ornamentation formed by dark and meander shaped crests, its sinuous capillitium and by its columella. At present, there are not many records of this species.

The spore ornamentation both under LM and SEM of these two species is very typical, and different from the rest of species of the genus *Comatricha*. This confirms that the microscopic features such as spore ornamentation are very important in the identification and delimitation of some critical species of Myxomycetes and especially of species of the genus *Comatricha*. These characters only can be observed under SEM, preferably using the critical point drying method, which keeps intact the original spore ornamentation. This paper has as an objective to complete the description of these too little known species and to increase its chorology with new records.

MATERIAL AND METHODS

The collected material was studied with a binocular microscope and after mounting in Hoyer's medium, with a Nikon (Optiphot) microscope. Scanning electron microscopy (SEM) micrographs were taken in the University of Alcalá de Henares using a Zeiss DSM-950. Spore measurements were made under the oil immersion objective and include surface structures such as spines or warts.

SEM-preparation: Sporocarps were rehydrated in concentrated ammonium hydroxide (28-30%) for 30 minutes, dehydrated in aqueous ethanol (70%) for 30 minutes, fixed for 2 hours in pure ethylene glycol dimethyl ether (= 1,2-dimethoxymethane) and finally immersed in pure acetone for at least 2 hours followed by critical point drying and sputtering with gold-palladium.

The terminology of the spore-producing stages follows DÖRFELT & MARX (1990) and LADO & PANDO (1997). The spore wall ornamentation as seen in the SEM is described according to the terminology proposed by RAMMELOO (1975a, b). The abbreviations for author citations follow KIRK & ANSELL (1992). All the samples are kepted in AH herbarium.

TAXONOMY

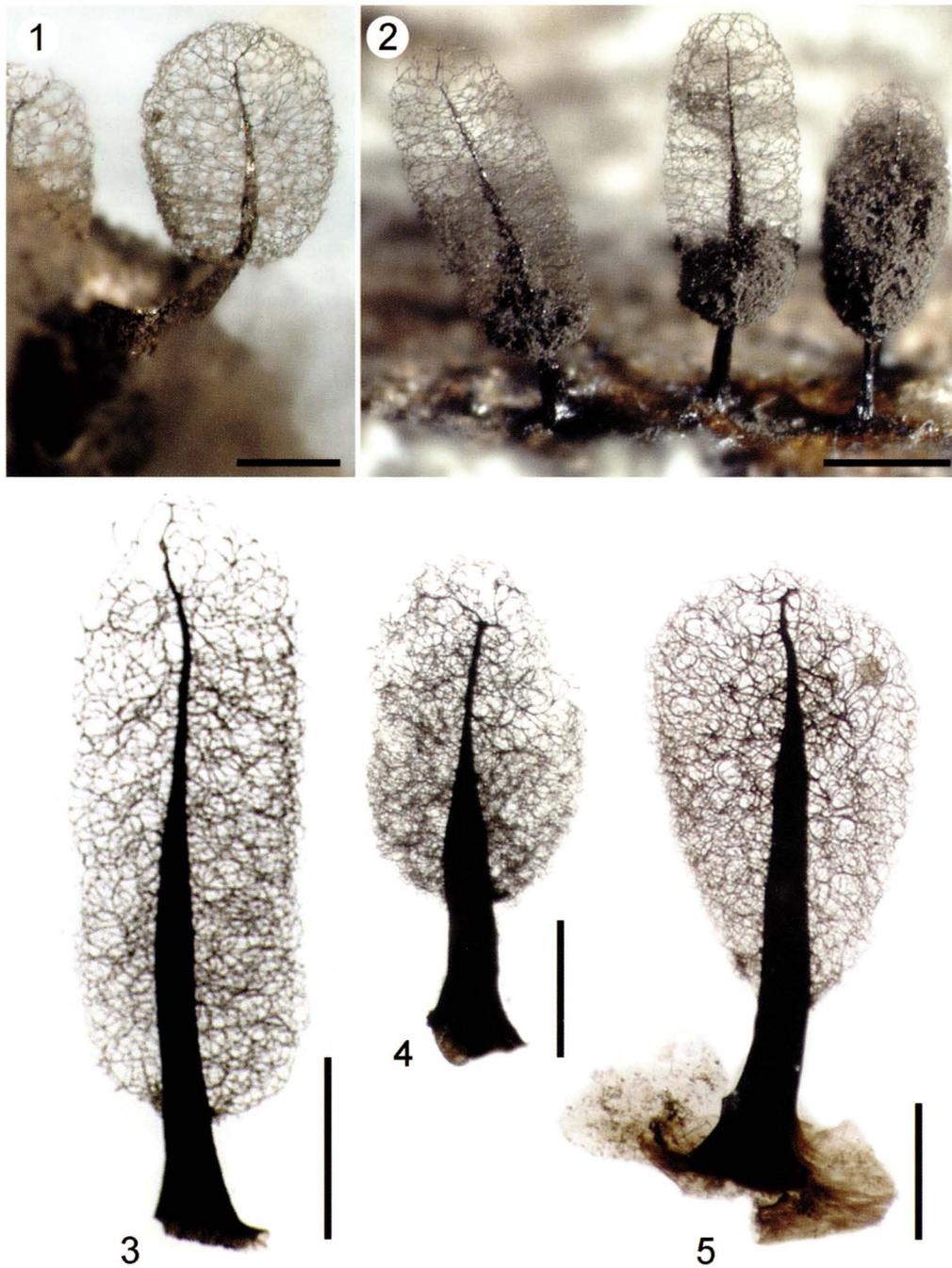
Comatricha meandrispora A. Castillo, G. Moreno & Illana, *Mycotaxon* 46: 315. 1993. (Figs. 1- 5, 10-11).

MATERIAL STUDIED: Guadalajara: Torremocha del Pinar, on wood of *Pinus pinaster* Aiton, 22-XI-1992, leg. A. Castillo, AH 15360 and AH 15364. Madrid: Santa María de la Alameda, source Arroyo del Tobar, 1650 m., on trunk whitout bark of *Pinus sylvestris* L., leg. P. Martín & M. Oltra, 13-VI-1993, 1958 Oltra in AH 20994. Santa María de la Alameda, source Arroyo del Tobar, 1650 m., on branch of *Pinus sylvestris* L., leg. M.P. Núñez & M. Oltra, 17-X-1993, 224 Oltra in AH 20977. Puerto de Navacerrada (1900 m.), on wood of *Pinus sylvestris* L., 19-X-1998, leg. A. Sánchez, AH-28626. Puerto de Cotos (1875 m.), on wood of *Pinus sylvestris* L., 4-VII-1998, leg. A. Sánchez, AH-30139. Segovia: Molino El Romo, Santo Domingo de Pirón (1300 m.), on wood of *Pinus sylvestris* L., 12-X-1998, leg. A. Sánchez, AH-28650. Boca del asno (1400 m.), Valsain, on wood of *Pinus sylvestris* L., 7-X-1996, leg. A. Sánchez, AH-30140. Boca del asno (1500 m.), Valsain, on wood of *Pinus sylvestris* L., 28-X-1997, leg. A. Sánchez, AH-30141. Puerto de Navacerrada, on wood of *Pinus sylvestris* L., 11.VI.2002, leg. A. Sánchez, AH-32244.

Comatricha meandrispora was described by CASTILLO *et al.* (1993), from gatherings growing on wood of *Quercus faginea* Lam. and *Pinus pinaster* Aiton, from the province of Guadalajara, Spain. It is characterized by its pale and small spores (5,5-7 µm in diam.) with an ornamentation formed by dark elongate and sinuous (meander shaped) crests. Therefore it was named *C. meandrispora*. Moreover, the shape of sporotheca ranges from cylindrical to oval, its capillitium is sinuous and its columella typically rostrate. Later, it has been cited from Santa María de la Alameda (Madrid), growing on wood of *Pinus sylvestris* L. (OLTRA, 1997). This species is also known from Rognaix (Savoie, France), collected by M. Meyer (personal comm.). This material was not published yet. MOBIN & CAVALCANTI (1999) cite six collections of *Comatricha* cf. *meandrispora* from the National Park of Sete Cidades (Piauí, Brasil), but we should consider these records as doubtful until they have been revised, since bigger spores (7,6 µm diam.) with a finely spinulose ornamentation are described for these samples, very different from *C. meandrispora*. As we have collected new and abundant samples of this species, a larger distribution seems very probable. We add colour photographs of its sporocarps to contribute to its diffusion among the myxomycetologists.

Comatricha pellucida G. Moreno & Illana, *Cryptogamie, Mycol.* 13 (4): 299. 1992. (Figs. 6-9, 12-15).

Fructifications very abundant, gregarious to dispersed. Sporocarps 0,7-1,5 mm in total height, stalked. Sporotheca 0,3-0,9 mm in diam., globose to ovoid, reddish brown (clayey). Stalk short, from 1/3-1/4 of the height of the sporotheca, dark reddish-brown, smooth, shiny, widened and fibrous at the base. Peridium evanescent, sometimes persisting as a reddish-brown collar at the base. Hypothallus conspicuous, discoidal and concolorous with the stalk. Columella present, up to 1/2 or 3/4 of the height of the sporotheca, cylindrical or gradually tapering towards the apex, concolor with the stalk, with an irregular apex that sometimes presents small and very short branches bearing spines. Capillitium hyaline, flaccid, easily fraying, arising along the columella, without main branches, forming a network with abundant meshes of variable diameters, hyaline to yellowish hyaline, with darker nodes up to 1 µm diam. by LM; capillitium threads 0,2-0,5 µm in diam., with abundant straight free ends. Spores 7-9 µm diam., globose, pale reddish-brown by transmitted light, bearing irregularly distributed warts. By SEM, irregularly distributed baculae of different width are observed.



Figs. 1-5 *Comatrixa meandrispora*: 1. AH 28626. 2. AH 15360. 3. AH 15360. 4. AH 14691 *Holotypus*. 5. AH 28626. (bar = 0,5 mm).

MATERIAL STUDIED: La Higuera, Segovia, 1050 m, on leaves of *Ulmus minor*, leg. A. Sánchez, 5-II-1998, AH 30044. Fuente la Reina, Castellón, on leaves of *Ulmus minor*, leg. A. Burguete, 31-I-1990, AH 12867 *Holotypus*, *Isotypus* in the private herbarium of Nanenga-Bremekamp n° 16690 in BR.

OBSERVATIONS: *Comatricha pellucida* is characterized by the clayey color of the sporotheca and its extremely thin, flexuous and hyaline capillitium, unique in the genus, that remind on one hand of the capillitium of some species of the genus *Diderma*, and on the other hand of the capillitium threads of the genus *Physarum*. Up to now, only two foliicolous collections of this species are known, both growing on leaves of *Ulmus minor* Miller in winter time. Other foliicolous species of the genus with a clayey colour are: *Comatricha rubens* Lister, *C. pulchella* (C. Bab.) Rostaf., *C. lurida* Lister and *C. tenerrima* (M.A. Curtis) G. Lister. *Comatricha rubens* is a similar species concerning size of the sporocarps and spore diameters, but it has a slender and longer stalk, a darker (pinkish brown), anastomosing capillitium with main branches and without nodes. *Comatricha pulchella* shows a dark brown capillitium and spores with a less marked ornamentation compared with *C. pellucida*. By SEM the ornamentation is very different and is formed by conspicuous baculae with thorny and irregular apices (RAMMELOO, 1983; MORENO, ILLANA & BURGUETE, 1993). *Comatricha tenerrima* presents a pale red capillitium, darker as the one of *C. pellucida* and a less conspicuous spore ornamentation by LM. By SEM the ornamentation is very different, formed by baculae with stellate apices (RAMMELOO, 1983; MORENO, ILLANA & BURGUETE, 1993).

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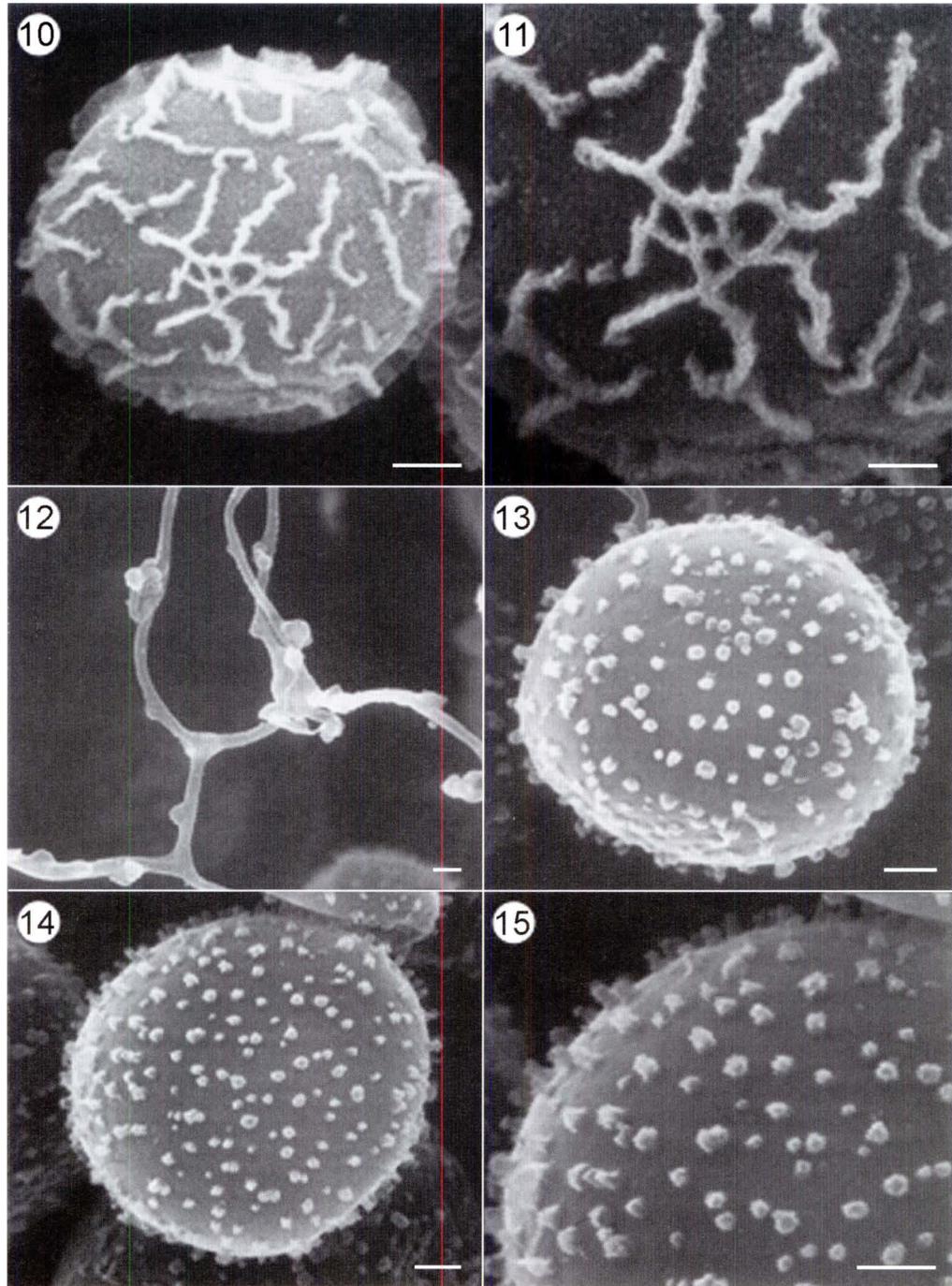
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Figs. 6-9 *Comatricha pellucida*: 6. AH 12867 *Holotypus*. 7. AH 12867 *Holotypus*. 8-9. AH 30044. (bar = 0,5 mm).



Figs. 10-11 *Comatricha meandrispora* AH 32244: 1. Spore (bar = 1 μ m). 2. Detail of spore ornamentation (bar = 500 nm). **Figs. 12-15** *Comatricha pellucida* AH 30444: 12. Capillitium (bar = 1 μ m). 13-14. Spores (bar = 1 μ m). 15. Detail of spore ornamentation (bar = 1 μ m).