

Microfungi.

III. *Mammaria* Cesati ¹⁾).

By S. J. Hughes ²⁾).

With 1 Textfig.

The generic name *Mammaria* was proposed by Cesati in 1854 for the single [type] species *M. echinobotryoides* Cesati. Saccardo (1886) compiled the species in '*Trichosporium* Fr.', and so far as I am aware, the name *Mammaria* has not been used since. The use of the generic name '*Trichosporium* Fr.' cannot be justified for Cesati's fungus.

Five collections of *M. echinobotryoides* have been available for study; the redescription that follows is drawn up from material occurring naturally on wood and from pure cultures. The fungus is illustrated in Fig. 1.

Mammaria echinobotryoides Cesati, Klotzschii Herb. viv. mycol. Cent. XIX. cura Rabenhorst. n. 1859, anno 1854; Bot. Zeitung, **12**: 190. 1854; Flora, **12**: 207. 1854.

= *Trichosporium echinobotryoides* (Ces.) Sacc., Sylloge Fungorum, **4**: 291. 1886.

Colletosporium echinobotryoides (Ces.) O. Kuntze, Revisio Generum Plantarum, **2**: 849. 1891.

Acrotheca solaris Sacc., Sylloge Fungorum, **2**: 202. 1883.

On Wood.

Colonies effuse and dull black on bare wood.

Mycelium mostly immersed, composed of pale brown to brown, septate hyphae which are 2—3.5 μ wide.

Sporophores: (The material on wood is old and details of sporophores cannot be well made out). They are erect or almost repent, straight or slightly curved, usually simple but sometimes bearing one or two short branches, septate, subhyaline to pale brown, produced densely on the substratum and up to 70 μ long.

Chlamydospores may be produced directly on the superficial or semi-immersed hyphae or on the differentiated sporophores. They are densely packed apically and laterally along most of the length of sporophores so that they are completely obscured. Chlamydospores

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develop as the blown-out ends of very short stalks and, I believe, in no apparent order; all the sporophores I have seen bear mature chlamydo-spores. The chlamydo-spores are very persistent, being moved with great difficulty from their point of attachment; when they are forcibly detached, however, they carry away with them at the flattened base, a torn part of the stalk on which they were borne. At maturity they are continuous, more or less oval, somewhat apiculate at the apex, flattened at the basal scar which is $2.3-4.6 \mu$ wide, smooth, dark brown, thick-walled with a straight and narrow clear line (germ slit) extending along half or three quarters the length of each. They measure $9.4-14.8 \rightleftharpoons 4.5-6.5 \mu$, mostly $12.1 \rightleftharpoons 5.4 \mu$. In a germination test (using chlamydo-spores produced in pure culture) some produced a germ tube through the longitudinal slit but most of them germinated through the basal scar.

In pure culture.

In pure culture good growth is obtained on malt, potato-dextrose, and oat-meal agars, but sporulation is poor on malt and good on the others. The two isolations available, which differ considerably in their ages, vary slightly in cultural characters; on potato-dextrose agar the colonies are fluffy, white at first, then grey and finally dark grey to black due to chlamydo-spore formation with one isolate markedly zonate. The margin is white or pale grey and the reverse black with a white margin. A three-weeks-old colony on potato-dextrose agar of DAOM 39987 was 5 cm. in diameter.

The mycelium is composed of branched, smooth hyphae $1.5-3.5 \mu$ wide which are hyaline to very pale brown, occasionally anastomosing, septate, with some septa up to 1.3μ thick and very dark; DAOM 39575 shows a far greater number of thick septa than does DAOM 39987.

Differentiated sporophores are more common in 39987 than in 39575 and they arise as lateral branches which are more or less erect, usually straight, up to 120μ long, and arise at right angles to the bearing hypha; on the other hand the ends of hyphae may become somewhat wider and function as sporophores. The apical cell or the two distal cells of a sporophore may be swollen up to 5.5μ wide, and brown or sometimes as dark as the chlamydo-spores. It is difficult at times to determine whether a chlamydo-spore-bearing hypha is sufficiently differentiated to merit being called a sporophore.

Chlamydo-spores are borne irregularly on the sporophores and as many as five may develop from a single cell but they are not crowded so as to obscure the sporophore as happens on the natural substratum. They are sessile and radiate from the sporophore usually at right angles to the long axis; they measure $10.8-14.8 \rightleftharpoons 5-6.5 \mu$.

Abundant sessile or very shortly stalked chlamydo-spores develop on the repent semi-immersed and aerial hyphae, usually one but sometimes two to each cell; whole lengths of hyphae may be fertile in this way so that differentiated sporophores are by no means essential for chlamydo-spore production.

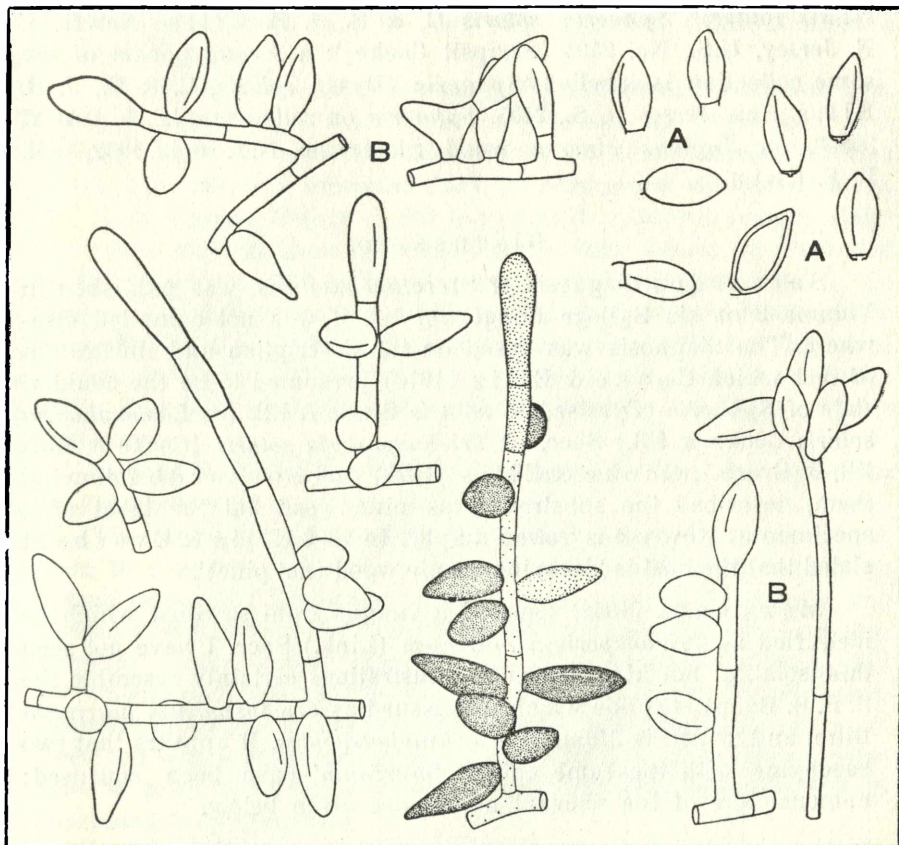


Fig. 1. *Mammaria echinobotryoides* Cesati. — A) Chlamydo-spores from the type collection of *Acrotheca solaris* in Herb. K. — B) Chlamydo-spores on repent and erect hyphae from one-month-old culture on potato-dextrose agar, of DAOM 39987 $\times 1000$.

Collections examined.

Europe: 1. The type collection of *Mammaria echinobotryoides* Klotzschii Herb. *viy. mycol.* n. 1895 in Herb. STR.³⁾ 2. '*Trichospo-*

³⁾ Abbreviations for Herbaria: STR, Herbarium of Institut de Botanique de la Faculté des Sciences, Strasbourg, France; K, Herbarium of the Royal Botanic Gardens, Kew, Surrey, Great Britain; DAOM, Mycological Herbarium, Botany and Plant Pathology Laboratory, Science Service, Ottawa, Canada.

rium murinum Ditm.' isolated from *Clematis* by Dr. H. C. Koning, June 1943, identified by van Beyma thoe Kingma (DAOM 39575: from Centraalbureau voor Schimmelcultures, Baarn, Netherlands). Canada: 3. DAOM 39987, isolated from decayed wood, Nashville, York Co., Ont., by R. F. Cain, x. 1952. United States: 4. The type collection of *Acrotheca solaris* in Herb. K (*Lasiotheca solaris* folder) '*Sphaeria solaris* C. & E., J. B. Ellis, Newfield, N. Jersey, U.S., No. 2405 [Scriptis Cooke]'; a second packet of the same collection is labelled '*Sphaeria* (Byss.) *solaris*, C. & E., J. B. Ellis, New Jersey, U.S., 2405. *Sphaeria* on rotten maple'. 5. DAOM 39863, on *Juglans cinerea* wood, Slaterville, N.Y. 6. ix. 1952, coll. R. F. Cain.

Discussion.

Saccardo's diagnosis of '*Acrotheca solaris*' was published in Volume 2 of his *Sylogae Fungorum* but it was not compiled elsewhere. The diagnosis was based on the description and illustration of that which Cooke & Ellis (1876) presumed to be the conidial state of *Sphaeria* (Byssisedae) *solaris* Cooke & Ell. (= *Lasiotheca solaris* Cooke & Ell.) Sacc. (= *Trichosphaeria solaris* (Cooke & Ell.) Ell. & Everh.). Cooke & Ellis (1876) and Saccardo following them, described the substratum as pine wood but the label of a specimen at Kew reads 'rotten maple'. In 1892 Ellis & Everhart stated that the host is 'decaying maple wood (not pine)'.

Mangenot (1952) isolated a fungus from sawdust which he identified as *Trichosporium murinum* (Link.) Sacc. I have not seen this isolation but Mangenot's illustrations certainly resemble the C. B. S. Baarn isolation which was issued as *Trichosporium murinum* Ditm. and which is *Mammaria echinobotryoides*. It appears that two basonyms with the same epithet '*murinum*' have been confused; nomenclators of the relevant names are given below.

Botrytis murina Ditmar in Sturm, Deutschlands Flora, **1**, Heft 3: 73, tab. 36, 1816.

≡ *Myxotrichum murinum* (Ditm.) Fr., Systema Mycologicum, **3**: 350, 1832.

From the description and more especially from the illustration, it is very probable that the name *Botrytis murina* Ditm. is based on the *Gonytrichum* state of *Melanopsammella inaequalis* (Grove) Höhnelt. In any case, it is totally different from *Mammaria echinobotryoides*.

Sporotrichum murinum Link, Jahrb. der Gewächskunde, **1**: 173, 1818.

≡ *Alytosporium murinum* (Link) Link, Linnaei Spec. Plantarum IV (Willdenow), 6 (Part 1): 24, 1824.

- ≡ *Trichosporium murinum* (Link) Sacc., *Sylloge Fungorum*, **4**: 291, 1886.
- ≡ *Colletosporium murinum* (Link.) O. Kuntze, *Rev. Gen. Plant.* **2**: 849, 1891.

Link's species was described in the Section "Grisea, sporidia griseis" of *Sporotrichum* with "floccis divaricatis" and "sporidiis minutis globosis" so this is also very different from *Mammaria echinobotryoides*.

In 1851 Bonorden included, '*Sporotrichum murinum* Syn. *Botrytis murina* Link' [sic] and he provided an illustration of a fungus which is extremely unlikely to be either *Botrytis murina* Ditm., *Sporotrichum murinum* Link, or *Mammaria echinobotryoides*.

In *Mycotheca Veneta* n. 290 Saccardo issued a fungus under the name '*Sporotrichum murinum* (Lk.) Bon.' which he illustrated in *Fungi italici* n. 740 as *Trichosporium murinum* (Link) Sacc.; the fungus is not *Mammaria echinobotryoides* but does, to some extent, resemble Bonorden's figure. Saccardo's particular fungus is known in Herb. DAOM from his exsiccatum on *Fistulina hepatica* from Italy and also from five recent collections made in North America.

In 1886 Saccardo cited *Botrytis murina* Ditm. as a synonym of *Trichosporium murinum* (Link) Sacc.

The production of non-septate, solitary chlamydospores is common to a number of fungi; chlamydospores may be produced on repent or upright hyphae or in both positions as in the fungus discussed above. *Mammaria* is thus related in its morphology to *Sporotrichum* Link, (sensu strictissimo) *Allescheriella* P. Henn., and *Rhinocladium* Sacc. & March. for instance. From the first two, *Mammaria* differs in being dematiaceous with the chlamydospores provided with a germ slit: in *Rhinocladium* the chlamydospores have one or more germ pores. *Sporotrichum* and *Rhinocladium* will be discussed fully elsewhere.

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Literature cited.

- Bonorden, H. F. 1851. *Handbuch der allgemeinen Mykologie*. Stuttgart.
- Cooke, M. C. and Ellis, J. B. 1876. *New Jersey Fungi*. Grevillea, **5**: 53 (and Plate 81, Fig. 9).
- Ellis, J. B. and Everhart, B. M. 1892. *The North American Pyrenomycetes*. Newfield.
- Mangenot, F. 1952. *Recherches méthodiques sur les champignons de certains bois en décomposition*. Paris.
- Saccardo, P. A. 1886. *Sylloge Fungorum*, **4**. Pavia.

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