

THE GENERA OF THE *BIONECTRIACEAE*

BATTARRINA (Sacc.) Clem., *in* Clem. & Shear, *Genera of Fungi* p. 279. 1931.

= *Hypocrea* subgenus *Battarrina* Sacc., *Syll. Fung.* 2: 533. 1883.

Type: *Battarrina inclusa* (Berk. & Broome) Clem. (= *Hypocrea inclusa* Berk. & Broome).

Ascomata immersed in host tissue, forming in discolored areas, non-ostiolate, hyaline to pale yellow, globose, about 250 μm diam, walls thin, membranous. Asci evanescent, scattered, without an organized hymenium. Ascospores globose to angular, non-septate, hyaline, sparsely echinulate. Anamorph unknown. On fruiting bodies of *Tuber*.

NOTES.— *Battarrina* was established as a subgenus of *Hypocrea* for species with globose ascospores. Although three species, *H. inclusa*, *H. cervina* Berk. & M.A. Curtis, and *H. cerebriformis* Berk., were included in the subgenus, the taxon was raised to generic rank with only *B. inclusa* and remains a unispecific genus. Benny & Kimbrough (1980) included *Battarrina* in the *Hypocreales* based on the literature.

Battarrina inclusa (Berk. & Broome) Clem., *in* Clem. & Shear, *Genera of Fungi* p. 279. 1931.

= *Hypocrea inclusa* Berk. & Broome, *Ann. Mag. Nat. Hist.*, Ser. 3, 7: 461. 1861.

Ascomata about 250 μm diam, cleistothecial, hyaline to pale yellow, membranous, thin-walled, wall structure of parallel hyphae up to 4 μm diam. Asci cylindrical, 30–33 \times 5–6 μm , clavate when young, evanescent at maturity, 8-spored, ascospores uniseriate. Ascospores globose to slightly angular, 4–6 μm diam, hyaline, thin-walled with sparse, slender echinulations about 1 μm tall.

HABITAT.— Parasitic in ascomata of *Tuber puberulum* Berk. & Broome.

DISTRIBUTION.— England.

HOLOTYPE.— ENGLAND. Bristol, Leigh Wood, Sept. 1859, C.E. Broome (K).

ADDITIONAL SPECIMENS EXAMINED.— ENGLAND. N. Bristol, Nov. 1869, C.E. Broome 2335 (K); Hanham near Bristol, Nov. 1871, C.E. Broome, Rabenhorst, *Fungi Europ.* 1610 (BPI, K, UPS).

ILLUSTRATIONS.— Berkeley & Broome (l.c., 1861, Fig. 23); Hawker (1955, Fig. 2); Petch (1938, Fig. 2).

NOTES.— The type specimen of *Battarrina inclusa* was

examined and found to be in poor condition apparently having been stored in liquid preservation and subsequently dried. The two sections of the host ascomata of *Tuber puberulum* contain indistinct ascomata of *B. inclusa*, appearing on the cut surface as glazed, pale-yellow areas. These areas are packed with asci and ascospores. The specimens of *Fungi Europaei* 1610 were also in poor condition. Petch (1938) included *B. inclusa* in his account of the British *Hypocreales*, based on the type description. Hawker (1955) discussed the species based on a fresh collection from Great Britain that was not located. Due to the poor condition of the type specimen and lack of additional specimens, many characteristics of *B. inclusa* remain obscure. The description given here includes details from Hawker (1955) and Petch (1938).

BIONECTRIA Speg., *Bol. Acad. Nac. Ci.* 23: 563. 1919.

Type: *B. tonduzii* Speg.

Ascomata solitary to gregarious, superficial to slightly immersed in an erumpent stroma, often occurring on other fungi. Ascomata white, yellow, pale orange, tan or brown. KOH–, wall smooth to warted or with scales, thin-walled hairs or flexuous setae, subglobose or globose to ovoid, when dried not collapsing or collapsing irregularly, ostiolate. Asci narrowly clavate to clavate. Ascospores 1-septate, rarely multiseptate, hyaline, smooth to spinulose or slightly warted. Anamorph *Clonostachys*. On leaves and decaying woody substrata.

NOTES.— At present *Bionectria* includes species formerly placed in the *Nectria ochroleuca*-group (Samuels, 1976a; Rossman, 1983; Schroers & Samuels, 1997), but it may also include species placed in the *N. ralfsii*-group (Samuels, 1976a), the *N. muscivora*-group (Rossman, 1983; Samuels, 1988), and species of *Nectria* having *Sesquicillium* anamorphs (Samuels, 1989a). Apart from having pallid perithecia, these species are similar in gross morphology and wall anatomy of the perithecium (Schroers & Samuels, 1997; Schroers *et al.*, 1999). Most species occur on woody substrata and are readily grown on agar. Anamorphs of species of *Bionectria* are useful in distinguishing species (Schroers *et al.*, 1999) and are classified primarily in *Clonostachys* (syn. *Dendrodochium*) or *Myrothecium*-like, the groups differing from each other by conidial color, viz. salmon in *Clonostachys*, and dark