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## SYMPODIELLA, A NEW HYPHOMYCETE GENUS

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(With Plate 30 and 2 Text-figures)

*Symptodiella acicola* gen.nov. sp.nov. a dematiaceous species inhabiting decaying needles of *Pinus sylvestris*, is described. The interesting development of its conidiophores and conidia is discussed. Cultural characteristics are briefly described, and ecological data are compared with those for a helicosporous form from the same habitat.

### *Symptodiella* gen.nov.

*Fungi Imperfecti* hyphomycetes saprophytici.

*Conidiophora* solitaria, erecta vel ascendente, simplicia, septata, atrobrunnea. *Conidia* acropleurogena, cylindrica, utrinque truncata, continua, hyalina, catenas siccas non ramosas formantes.

*Typos generis:*

### *Symptodiella acicola* sp.nov. (Plate 30, Text-figs. 1, 2)

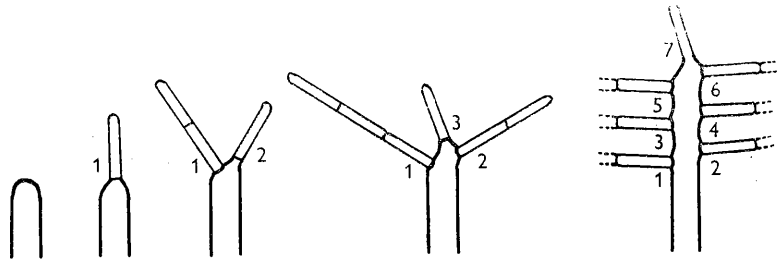
*Mycelium* atrobrunneum, sparsum, superficiale; *hyphae* atrobrunneae, septatae, prostratae, anastomosantes, reticulum in utraque pagina foliorum formantes. *Conidiophora* solitaria, atrobrunnea, apice pallide fusca excepta, simplicia, erecta vel ascendente, septata, 26-280  $\mu$  longa, 2.2-3.6  $\mu$  crassa. *Conidia* acropleurogena, cylindrica, utrinque truncata, continua, hyalina, 7.4-14.0  $\mu$  longa, 1.6-2.4  $\mu$  crassa, catenas siccas non ramosas formantes. *Habitat* in foliis putridis *Pini sylvestris* L., Delamere, Cheshire, Anglia. *Holotypus* in Herb. I.M.I. No. 69967.

*Symptodiella acicola* forms a superficial network of darkly pigmented, septate, anastomosing hyphae (Pl. 30, fig. 2). The conidiophores are generally solitary, though occasionally several may be juxtaposed for part of their length (Pl. 30, fig. 1). They are simple, septate, and darkly pigmented except at the extreme apex, which is much lighter in colour, and 26-280  $\times$  2.2-3.6  $\mu$ . The conidia are cylindrical when mature, slightly expanded then abruptly truncate at both ends, smooth, hyaline and continuous, 7.4-14.0  $\times$  1.6-2.4  $\mu$ . They are borne acropleurogenously in dry, unbranched chains on the terminal portion of the conidiophore. A single conidiophore may produce more than twenty conidial chains, and one chain may consist of up to six conidia. The conidia are readily deciduous, though often remaining connected together in short chains after being shed.

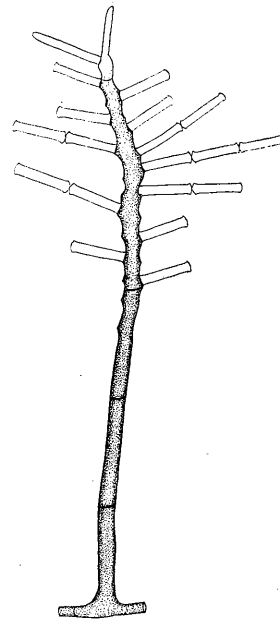
If the mode of development of the conidiophores and conidia is examined, it is seen that *Symptodiella* may be placed in section II of Hughes's classification of the Hyphomycetes (Hughes, 1953). The first conidium is produced by a modification of the conidiophore apex. A new growing point develops just behind and to one side of this conidium, but almost

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immediately forms another conidium, to be replaced in turn by a further laterally developing growing point. As this process is repeated many times, the conidiophore increases in length in a sympodial manner, from which the generic name is derived. Acropetal, dry, unbranched chains of secondary conidia develop on the primary conidia by repeated extension and abstriction, growth being restricted to the terminal conidium of any



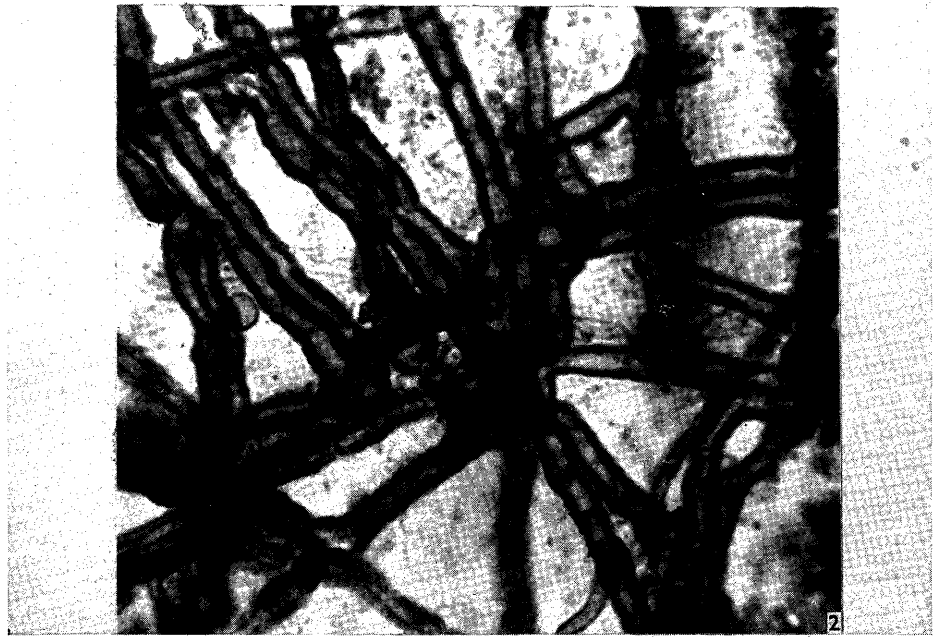
Text-fig. 1. *Sympodiella acicola*. Diagrammatic representation of the development of a conidiophore, and the formation of primary and secondary conidia. Primary conidia are numbered in the order in which they are produced.



Text-fig. 2. *Sympodiella acicola*. Mature conidiophore from the natural substrate.  $\times 800$ .

chain. These processes are diagrammatically represented in Text-fig. 1. The diagrams are considerably simplified, as conidia are in fact borne on all sides of the conidiophore. A mature conidiophore from the natural substrate is shown in Text-fig. 2.

The conidia germinate readily when picked off and plated on 2% malt extract agar, and the mycelium grows slowly, forming a restricted pulvinate



(Facing p. 521)

colony with an intensely black reverse, and a velvety brown-black aerial turf. Conidiophores develop in culture only after approximately two months. Some of the conidiophores observed in culture are once or twice branched, a phenomenon not seen on the natural substrate.

*S. acicola* was first observed in Sept. 1955, on decomposing needles of *Pinus sylvestris* from the F 1 layer of the Ao horizon of a podzol at Delamere Forest, Cheshire, England (Pl. 30, fig. 1). In Kendrick (1958*a*) *S. acicola* was referred to as 'Isolate 1/6', which was found on 89 % of needles of the F 1 layer examined, though absent from both L and F 2 layers immediately above and below the F 1. Thus *S. acicola* occurs in the same micro-habitat as *Helicoma monospora* Kendrick (1958*b*), and probably has similar nutritional requirements. Linder (1929) states that many of the saprophytic Helicosporae can successfully utilize either pectin or cellulose as their sole carbon source, and form a sparse, spreading mycelium on media containing these substances, though developing dense, pulvinate colonies on other substrates. As both *H. monospora* and *S. acicola* form sparse surface networks of creeping assimilative hyphae on the decaying pine needles, it seems probable that they attack the pectic substances of the middle lamellae, and the cellulose of the cell walls.

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#### EXPLANATION OF PLATE 30

##### *Symptodiella acicola*

Fig. 1. Naturally occurring conidiophores on a decaying needle of *Pinus sylvestris* from the F 1 layer of the Ao horizon.  $\times 200$ .

Fig. 2. Reticulum of anastomosing assimilative hyphae on the needle surface.  $\times 1500$ .

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