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A SPECIES OF SEPTOBASIDIUM SHEDDING ITS IMMATURE BASIDIA

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(With five Text-figures)

A new species of *Septobasidium* is described, in relation with which the position of the genus *Uredinella* is discussed.

On two occasions a *Septobasidium* was found which on microscopical examination showed large numbers of free basidia. It could be demonstrated that these break off from the probasidia when still in the unseptate condition. Afterwards septa are formed, after which each cell produces a basidiospore on a short sterigma. As the species seems new, the following description is given.

Septobasidium planum Boedijn, *nov. spec.*

Fructificatio resupinata, hypophylla, suborbiculata, 7–22 mm diam. Margo plana, pallide brunnea, media elevata, usque ad 1 mm alta, fusca, ex hyphis solitariis vel fasciculatis erectis, brunneis, septatis, crasse tunicatis, 7–8 μ diam. formata. Probasidia pedicellata, globosa, pallide brunnea, 15–18 μ diam. Basidia recta, simplicia, decidua, deinde 3-septata, 53–65 × 6.5–10.5 μ. Sterigmata 4–5.5 × 1.5–2.5 μ. Sporae fabiformes, 15–20 × 6–7 μ.
Typus: Java, Bogor, Hortus botanicus, Sept. 1956 (Herb. Boedijn).

The colonies are rounded to irregular in outline, 7–22 mm across, bordered by a typical, very flat margin which is greyish brown (about wood brown, Ridgw.), 1–7 mm, usually 4–5 mm, broad. In the centre more or less erect threads and fascicles of threads form slightly elevated portions which cover the scale insects upon which the fungus grows. Sometimes there are a number of such raised parts which are dark brown (about natal brown, Ridgw.), irregular in shape or with a lobed outline, 3–7 mm across.

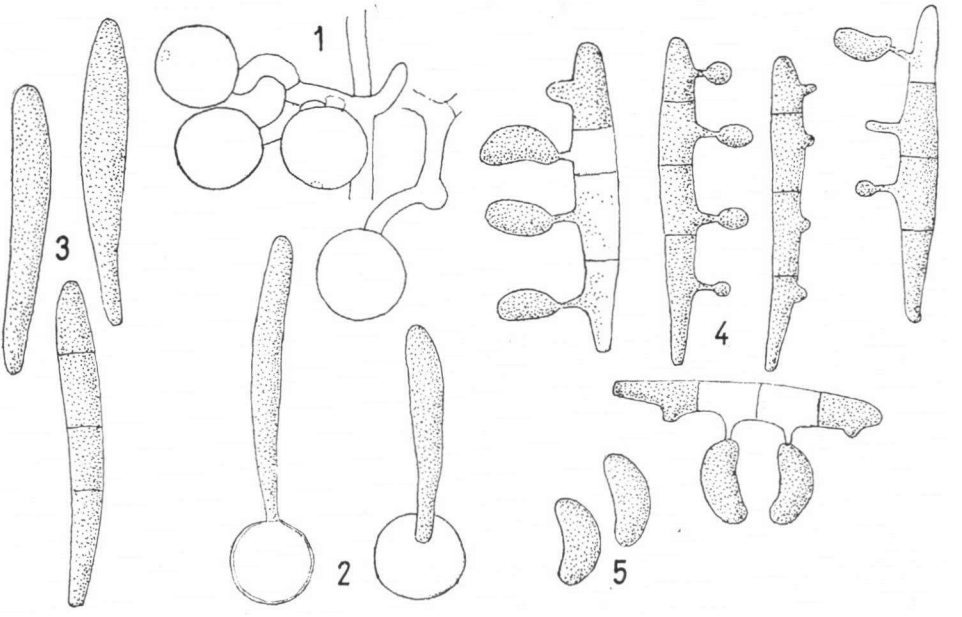
The border consists of a 15–20 μ thick layer made up of pale brown, much branched and septate hyphae which are 3–5 μ wide. In the central part the basal layer over the scale insects becomes 50–120 μ high, with the darker threads almost forming a mat. The erect threads and fascicles of threads are up to 1 mm high. The separate hyphae are dark reddish brown, septate, and very thick-walled, 7–8 μ wide, with the cell-wall up to 4 μ thick. In many places the threads coalesce to form 24–27 μ broad fascicles. Sometimes two or more smaller fascicles unite near their tips to form one large fascicle. The scale insects are penetrated by large, much branched, hyaline haustoria, the branches of which are 2–3 μ broad.

The margin contains numerous probasidia, and to a lesser extent these are also found in the central part. The probasidia are round, pale brown, 15–18 μ across, with slightly thickened cell-wall, and with a germ pore 3–4 μ wide. Sometimes a new probasidium is formed by proliferation within the old and empty one. The

probasidia develop long, club-shaped, straight basidia measuring 53–65 × 6.5–10.5 μ. These are shed and dispersed when still in the one-celled state. Afterwards, the free basidia form cross-walls, becoming 4-celled. Each cell sends out a sterigma which is 1.5–2.5 μ broad at its base and 4–5.5 μ long, bearing one basidiospore. Spore-formation which often is not simultaneous, is brought about in that the whole protoplasmatic contents of each cell passes into the spore. The spores are fabiform with rounded ends, 15–20 × 6–7 μ.

Java, Bogor, Botanical Gardens, Sept. 1956 (type), Oct. 1957.

On scale insects on the underside of coriaceous leaves, most probably of a *Cinnamon* species.



Figs. 1–5. *Septobasidium planum* Boedijn: 1—probasidia; 2—germinating probasidia; 3—free unseptated basidia; 4—various stages of development of basidia; 5—spores.

From the above description it is evident that the present species has much in common with representatives of the genus *Uredinella* as described by Couch. In species of this genus the basidia are also known to break easily off from the probasidia which were called teleutospores by Couch. It is on account of these teleutospores and perhaps a second type of spores, interpreted as uredospores, that *Uredinella* was believed to have connections with the Uredinales. Especially the so-called uredospores need commenting here. They germinate from probasidia in the same manner as in ordinary basidia, and are shed as long, non-septate, cylindrical bodies. The comparison, however, with true uredospores does not hold, for, as is well known, these structures have the appearance of probasidia, and on germinating produce a mycelium. From the description it is at once clear that the uredospores

in *Uredinella* merely represent young basidia. In addition to the two kinds of spores, the poorly developed sterile tissue in the fructification of *Uredinella* was thought to be of importance, since in the sori of many of the Uredinales sterile tissue is even lacking. However, the resemblance of both the sterile tissue and the spores is of a superficial nature only, not at all adequate to establish a connection between *Uredinella* and the rusts.

With regard to the relation between *Uredinella* and *Septobasidium*, the only difference is in the fact that the fructifications of the former grow on a single scale insect, whereas those of the latter cover whole colonies of the animals. This, however, would hardly seem sufficient to maintain *Uredinella* as a separate genus.

LITERATURE

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