Botany. — "*On* Sclerotiopsis pityophila (CORDA) OUD., *a Sphaeropsidea occurring on the needles of* Pinus silvestris." By Prof. C. A. J. A. OUDEMANS.

In the "Nederlandsch Kruidkundig Archief", 3d series, vol. II, pag. 247, I mentioned a fungus found in 1901 by Mr. C. A. G. BEINS at Nunspeet on the needles of Pinus silvestris, which fungus, discovered in 1840 on the same host near Prague by the botanist A. J. C. CORDA, was described in vol. IV of his "Icones Fungorum" on page 40, under the name of *Sphaeronema pythiophilum* [1])

The same fungus received a place in SACCARDO's "Sylloge Fungorum", vol. III (A° 1884), p. 101, this time under the name of *Phoma pityophila*, whereas on account of a new investigation of fresh specimens I thought it necessary myself, in the article quoted above, to change the name *Phoma* again and to replace it by that of *Sclerotiopsis*.

Besides SACCARDO, also ALLESCHER, in the 6th vol. of WINTER's Kryptogamen-Flora (1901), page 199, uses the name *Phoma pityophila* for this fungus, which name is changed into *Sclerotiopsis*, by way of improvement, in vol. VII, p. 847 of the same work.

Having been enabled through the kindness of Mr. BEINS in January 1904, to examine again some fresh specimens of *Sclerotiopsis pityophila*, I availed myself of this opportunity of testing once more my former experience by facts and had the advantage of having at my disposal the drawings by Mr. C. J. KONING, chemist at Bussum, which accompany this article. I have to thank Mr. KONING for the kindness which he has repeatedly shown in assisting me on former occasions as well as on this. Some particulars supplementing former communications may be mentioned here.

The reason that induced SACCARDO in 1884 to change the name *Sphaeronema* into *Phoma* was that some very characteristic properties of the former genus had been passed over silently by CORDA, viz. that in his paper no mention is made either of a beak- or brush-shaped prolongation of the peritheciumwall or of spores which, conglomerated to a ball, should have been found at the surface of the perithecia.

The generic name chosen by CORDA could not be retained and so no other name seemed more appropriate to the Italian mycologist to replace it than that of *Phoma*, which judgment has not been doubted by any subsequent writer.

[1]) The Greek for pine being πίτυς, in what follows CORDA's wrong orthography has been corrected.

Meanwhile it was evident as well from the very brief description of *Phoma pityophila* in SACCARDO's Sylloge as from his silence on the microscopic properties of the fungus, that this author had not been able to examine freshly collected specimens, so that mycologists working after him under more favourable conditions might possibly find something to improve.

Having had this opportunity myself it may not be superfluous to return once more to my *Sclerotiopsis pityophila* and to consider more fully the difference between *Sclerotiopsis* and *Phoma*.

First of all it must be mentioned that the perithecia of *Phoma*, when produced by leaves, although they lie concealed below the epidermis, yet are by no means buried deep in the tissue as is the case with *Sclerotiopsis* (Fig. 3—5) and probably on account of this are much more irregularly shaped, sometimes coalesce and come forth with a stronger and less rounded appearance.

Secondly any one who has examined many specimens of *Phoma* must have noticed that with *Sclerotiopsis* stronger and denser perithecia are found which are carbonaceous at the surface, whereas those of *Phoma* belong to the forms that offer little resistance, and are tender and light-coloured; finally that the perithecia of *Sclerotiopsis* have no orifice but decay or burst, whereas with *Phoma* the rule is that a small round ostiolum is found through which the spores are discharged.

In addition to this we remark that the spores of *Sclerotiopsis* do not lie loosely together like those of *Phoma*, but remain long connected by means of a sticky substance (fig. 3 and 4), the consequence of which is that a few drops of water are sufficient to cause *Phoma*-spores to diverge in all directions whereas with *Sclerotiopsis* a slight pressure or friction is required to make them fit for a closer examination.

This latter peculiarity was exactly the reason why CORDA imagined to have found a *Sphaeronema*, overlooking that the beak- or brush-shaped prolongation of the peritheciummouth was absent and that consequently no cluster of spores could be formed at the top of such a prolongation.

The question whether the spores of *Sclerotiopsis* are produced on the top of sporophores is difficult to answer, although analogy pleads for it, since there is no distinct division between the wall of the perithecium and the gleba (the cluster of spores) but a gradual transition of one into the other. Yet not far from the surface of the perithecia ((Fig. 6) a segmentation seems to take place and the formed spores seem to be slowly pushed to the centre.

Fig. 1.

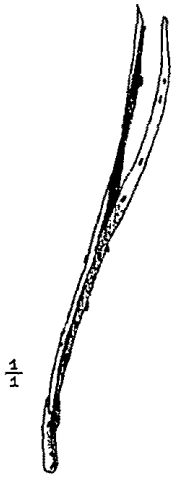


Fig 2

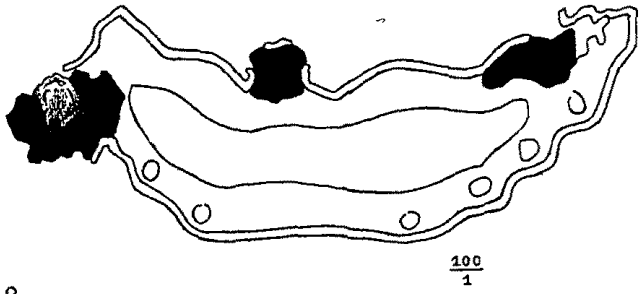


Fig 3.

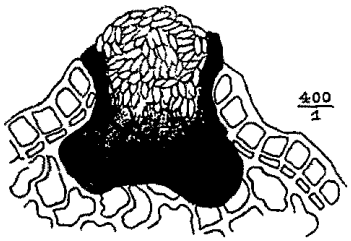


Fig 5.

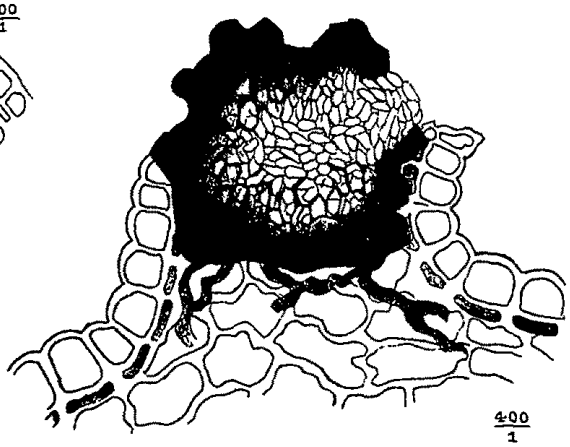


Fig 4

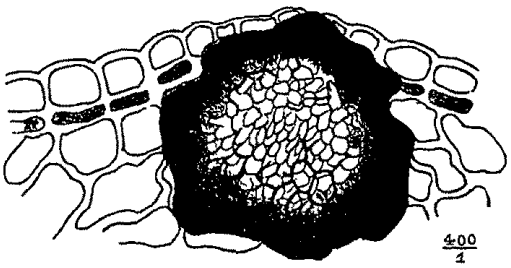
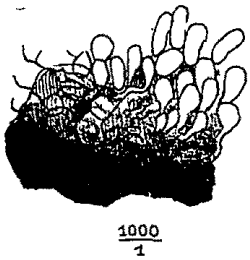


Fig 7.

Fig 6.



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Sclerotiopsis pityophila (Corda) OUD., a saprophyte, appears as black, fleshy grains (Fig. 1), $^1/_2$—2 mm. broad, which are expelled from the tissue of the needles. They consist of polygonal parenchym-cells which at the circumference are larger, harder and darker but in the interior become smaller, softer and colourless and seem to border on a small cavity, which is soon filled with spores. These latter are oval or egg-shaped, straight or slightly curved (Fig. 7), unicellular and undivided and have rounded tops. They vary from $7 - 8 \times 3 - 4\,\mu$, have no polar drops and no appendices. Germinating spores were not found.

The first *Sclerotiopsis* was found by SPEGAZZINI in the Argentine republic on rotting leaves of *Eucalyptus Globulus* and was called *S. australasiaca.* A second and third species (*Scl. Cheiri* OUD. and *Scl. Potentillae* OUD.) were found by myself and Mr. BEINS, the former on the stems of *Cheiranthus Cheiri* in the Botanic Garden at Amsterdam, the latter on the leaves of *Potentilla procumbens* at Nunspeet. Finally CORDA first mentions *Scl. pityophila* (Corda) OUD. which was collected in 1840 on pine-needles at Prague and 60 years later at Nunspeet.

EXPLANATION OF THE FIGURES.

Fig. 1. A few needles of *Pinus silvestris* studded with perithecia of *Sclerotiopsis pityophila* (Corda) OUD. — Natural size.

„ 2. A needle of *Scl. pityophila* loaded with some perithecia. Cross-Section. Magnification 100.

„ 3, 4 and 5. Vertical sections of *Scl. pityophila*, magnified 400 times. The carbonaceous wall of the perithecium is clearly visible here everywhere. In 3 and 5 the perithecia have broken through the epidermis, in 4 not yet; in the former two also the conglomerated spores are discerned.

„ 6. A piece of a peripheral part of the wall of the perithecium with some stalked spores. Magn. 1000.

„ 7. Single spores, 1000 times enlarged.