ORIGINAL ARTICLES.

MYCOLOGICAL NOTES (20).

MACROPHOMINA PHASEOLI (MAUBL.) ASHBY AND RHIZOCTONIA BATATICOLA (TAUB.) BUTL.

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IT has been found in the course of work on the morphology of the sclerotium of *Macrophomina Phaseoli* (Maubl.) Ashby (=*Rhizoctonia bataticola* (Taub.) Butl.) that the strains of the fungus isolated from different hosts may be separated into three groups, the division being based on mean sclerotial diameter in culture. The first group contains those strains with a mean sclerotial diameter of 120 microns or less; strains of the middle group have a mean sclerotial diameter round about 200 microns, while the third group contains those strains whose sclerotia are commonly measured in millimetres and tenths of a millimetre. Arbitrary as this grouping undoubtedly is, it has nevertheless been found to be entirely reliable during a period in which hundreds of cultures have been examined. It must be understood that the basis of classification is the mean sclerotial diameter; the upper limit of the range of sclerotial diameter in the lowest group distinctly overlaps the lower end of the range of the middle group, but the means remain distinct. The distinction is such that with very little practice cultures of the three groups can be distinguished with the naked eye. A full report of this work will be published under the above title in *The Ceylon Journal of Science* (*Annals of the Royal Botanic Gardens, Peradeniya*) where it will be shewn that other differences exist, although such differences are not considered sufficient to warrant separation into different species at present.

In the *Transactions of the British Mycological Society* for 1927 Ashby (1) established *Macrophomina Phaseoli* (Maubl.) Ashby as the pycnidial stage of *Rhizoctonia bataticola* (Taub.) Butl. The determination was made on the examination of pycnidia and spores from jute, sesame, pigeon pea and beans and of the sclerotial forms produced when the pycnospores were grown

on culture media. On two occasions, one recorded in February 1928 (2) and one in the paper to be published, pycnidia of *Macrophomina Phaseoli* have been obtained in culture; otherwise they have been found only in nature, and in the absence of evidence to the contrary it has been assumed that all sclerotial forms referable to *Rhizoctonia bataticola* will have as their perfect stage the pycnidial form *Macrophomina Phaseoli*. These sclerotial forms "range from 50 to 150 microns in diameter in the tissue of herbaceous plants but in the roots of woody plants Small found them up to 0·8 by 1.0 mm. in size; in cultures the variation is from 50 to 200 microns." (1). In Ceylon the sclerotia have been found on more than fifty plants, but the hosts of the pycnidia are two only, beans and sunflower. The Ceylon sclerotia have exhibited the wide range in size quoted above, but have exhibited it in culture as well as in nature. As far as is known at present pycnospores of *Macrophomina Phaseoli*, from whatever source they were isolated, have always given in culture sclerotia which belong to the lowest of the three groups established in the present work, and it is the writer's conviction that they will always give sclerotia of this group. If this is so, it accounts for the remark of Ashby quoted above: "in cultures the variation is from 50 to 200 microns." The statement was no doubt based on the examination of the sclerotia produced by germination of spores from the various pycnidial forms now gathered together under the new binomial *Macrophomina Phaseoli*. In view of the grouping established in the present note, it is by no means certain that all sclerotial forms now included in *Rhizoctonia bataticola* will have *Macrophomina Phaseoli* as their perfect stage, and in view of this possibility the sclerotial forms are referred to as *Rhizoctonia bataticola* and the name *Macrophomina Phaseoli* is reserved for the pycnidial stage.

Cultural and inoculation experiments are described, and some interesting mutations are recorded. It is thought that these may throw some light on the question of the parasitism of *Rhizoctonia bataticola* in nature.

REFERENCES.

1. Ashby, S. F.—*Macrophomina Phaseoli* comb. nov. The pycnidial stage of *Rhizoctonia bataticola* (Taub.) Butl. Trans. Brit. Myc. Soc. XII, 1927, p. 141.

2. Haigh, J. C.—*Macrophomina Phaseoli* (Maubl.) Ashby. The pycnidial stage of *Rhizoctonia bataticola* (Taub.) Butl. Tropical Agriculturist LXX, 2, Feb., 1928, p. 77.