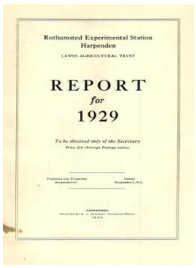
This work is licensed under a Creative Commons Attribution 4.0 International License.

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readible, or you suspect there are some problems, please let us know and we will correct that.

ROTHAMSTED RESEARCH

Report for 1929

Full Table of Content



Fungi and Bacteria

Rothamsted Research

Rothamsted Research (1930) *Fungi and Bacteria ;* Report For 1929, pp 43 - 43 **- DOI: https://doi.org/10.23637/ERADOC-1-111**

This work is licensed under a Creative Commons Attribution 4.0 International License.

PLANT PATHOLOGY.

Fungi. In the Mycological Department, the fundamental physiological and genetical work on fungi is continuing. Strains of *Botrytis cinerea,* apparently identical in structure and cultural reactions, differed markedly in pathogenic properties, and, conversely, strains different in structure and cultural reactions had similar pathogenic properties: for example, one strain is parasitic on Nicandra, oats, sweet pea, and harmless to sugar beet, tobacco and broad beans; while another, indistinguishable in appearance and culture relations, is harmless to Nicandra and oats, but parasitic on sweet pea and sugar beet: it is harmless also to tobacco and broad beans. Much work is needed to clear up the difficulties of this complex subject.

The biological relationships of these strains are being studied in view of the fact that two or more of them frequently grow intermingled on a host plant. Certain things happen when the hyphæ meet, the phenomena differing with the different strains. Numerous sclerotia of particular strains have been grafted on to sclerotia of other strains, and in a percentage of cases organic union has apparently been effected. The sclerotia have then been germinated in the attempt to derive from the line of junction conidiophores and single spores containing both parental strains. Up to the present all conidia have given rise to either one or the other parental type.

In studying wart disease of potatoes, certain new hosts were discovered: *Solanum dulcamara* var. *Villosissimum,* and var. *alba*: *S. nudiflorum*: *S. Villosum*: *Nicandra physalodes*: in some of the host plants the fungus occurred in the tissues, but showed little or no signs of its presence.

Bacteria. The Black Arm Angular Leaf spot disease of cotton has been closely studied. The causal organism, *B. malvacearum,* is capable of wide variations in shape and size according to its conditions of growth, it has also methods of reproduction quite different from the usual simple vegetative division. It can even change into an entirely new cultural type; one of the forms is possibly identical with the common yellow saprophyte of cotton: this is only slightly virulent, but under certain conditions it appears to be capable of reverting to the normal or even a more virulent type.

In a cytological study of the organism, evidence has been found of the presence of nuclei which undergo division more or less simultaneously with the division of the cell body; also they divide during the formation of the coccal forms, and one-half of the structure passes into the newly formed body.

The relation of the organism to the plant is being studied in special chambers allowing of the growth of cotton plants under controlled conditions. Primary infection from inoculated seed occurred at all temperatures from 17° to 35° C. (the highest so far used), but was greatest at 24°-25° C. No infection was found when the seed from the Sudan had been externally sterilised; some occurred with untreated seed; a higher percentage with seed soaked in a suspension of the organism and a still greater occurrence (reaching 100% at the intermediate temperatures) when the organism had been introduced within the seed coat. Neither soil temperature nor amount of primary infection had any influence on the incidence of secondary infection brought about by spraying a suspension of the organism on to the plant.

https://doi.org/10.23637/ERADOC-1-111