Diseases of *PAN* (*Piper betle*) in Sylhet, Assam

Part VI. *Gloeosporium* Leaf-Spot

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(With one Plate)

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I. INTRODUCTION

A leaf-spot of *pan* (*Piper betle*, Linn.) due to *Gloeosporium* sp. has been found widespread and occurs throughout the *pan*-growing tracts. A few leaves here and there in a *boroj* are usually attacked. The number of spots on a leaf commonly varies from one to four, rarely the entire surface of a leaf is covered with a large number of spots. It is when leaves are covered with a large number of spots that they lose their market value, otherwise they pass as normal leaves. In general, the disease is of minor importance and the damage done is slight.

II. SYMPTOMS OF THE DISEASE

The disease starts on any portion of the leaf. Usually younger leaves are more susceptible to infection than old ones. When young the spots are small, circular or irregular and brownish in colour, when old they increase slightly in size, become more irregular and the colour darkens slightly approaching straw colour. The spots are always somewhat sunken. In some cases the surface of the lesion is slightly roughened by acervuli that have broken through the epidermis. In certain instances the central dead portions of the spots have been noted to fall off. Plate XIII, shows the symptoms of the disease.

III. ETIOLOGY

A large number of isolations were made from diseased specimens collected from the different *pan*-growing tracts. A species of *Gloeosporium* was always obtained in culture. The pathogenecity of the fungus was established in the usual manner by isolation, culture inoculation and comparison.
The morphological characteristics of the fungus were studied in culture. When grown on oat agar this fungus produces a minimum of mycelium and large ochraceous salmon-colour spore masses. The spores are unicellular, hyaline, straight, often taper slightly at both ends and measure 8.4-19.6 x 3-5.64 µ (average 13.4 x 4.64 µ) which is well within the range given by Shear and Wood (1913) for the conidia of Glomerella cingulata (Stonem.) Spauld and v. Schrenk. As such the present fungus is identified as the conidial stage of G. cingulata.

IV. PERPETUATION AND DISSEMINATION OF THE PATHOGENE

(i) Perpetuation.—Species of Glomerella are known to be weakly parasitic in their imperfect stages. They are cosmopolitan organisms and may be found on a wide range of weak and dead plants. A careful investigation has revealed that the fungus survives on the dead host tissues lying in piles along the ridges and the dead leaves and vines left in the plantations.

(ii) Dissemination.—Agati (1921) showed that the conidia of Gloeosporium musarum Cke. and Massee on banana are disseminated by wind and by insects. Higgins (1913) reported that wind helps in the dissemination of the spores of Gloeosporium in the field. According to Edgerton (1908) conidia of G. nervisequum cannot be blown away by the wind because they are held firmly by mucilaginous substance. He believes that spore dissemination is affected by rain. Clinton (1902) states that the conidia of G. fructigenum are disseminated by small pomaceous flies of the genus Drosophila.

The methods of dissemination of the spores of the fungus were studied, and it was observed that the spores can be disseminated by wind, rain and water passing over the lesions.

V. CONTROL MEASURES

The disease has been found rarely serious requiring any methods of control. When serious it can be easily controlled by spraying the plants with a 2:2:50 Bordeaux mixture or Perenox. Both these mixtures have been given a wide trial during the last three years and have been found to yield very satisfactory results. In addition to spraying clean cultivation and sanitary methods should be followed. The dead vines and leaves should be collected and destroyed and not allowed to rot in the boroj.

VI. SUMMARY

A leaf-spot of pan (Piper betle Lin.) has been found widespread and occurs throughout the pan-growing tracts.