SHORT SCIENTIFIC NOTES

Leaf Spot Disease of Rubber Caused by *Curvularia pallescens* Boedijn

During months of June–July, minute brownish red spots with yellow halo were noticed on leaves of *Hevea brasiliensis* in the budwood nursery. From these spots *Curvularia pallescens* Boedijn was isolated.

The fungus grows well on potato dextrose agar and oats agar. The culture was slightly greenish in colour in the beginning but later on developed a black velvety, glistening appearance with its conidia and conidiophores.

Artificial inoculation on rubber seedlings in the field and on cut shoots in the laboratory produced high percentage of infection. Young flushes sprayed with a conidial suspension from 7-day-old culture of the pathogen produced brownish red spots within 24 hours. The spots are slightly raised at the lower surface of the leaf. Shrivelling of the leaves was noticed due to the infection at the copper brown stage. *Curvularia pallescens* Boedijn was isolated from lesions produced by artificial inoculation.

The author expresses her sincere thanks to Shri. P. N. Radhakrishna Pillai, Deputy Director and the Director, Rubber Research Institute of India, for their encouragement and to CMI, Kew, England, for kindly identifying the pathogen.

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An Analysis of Step-Drawdown Test Data—A Simplified Solution

The analysis of step-drawdown test for determining well loss constant and aquifer loss constant from Jacob's equation (1946) has been simplified by merely solving the drawdown equations of the steps at a time, like simultaneous equations. The step-drawdown test data from Betul area in Madhya Pradesh conducted by the Evangelic Luther Church Water Development Project have been taken to elucidate this simplified method. The test data were analysed using the graphical method of Bruin and Hudson (1955) in the above project. The value of B, *i.e.*, the aquifer loss constant, and C, the well loss constant, by the graphical method were determined to be 0 1225 and 0 00072 respectively.

The values from the test data were introduced in Jacob's equation. The simultaneous equations for the two steps are as follows :

$$0\ 14 = B + C \times 25 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots I$$

and $$0{\cdot}146 = B + C \times 33{\cdot}33 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots II$$

After solving the simultaneous equations I and II, the value of C comes out to be 0 00072. Introducing the value of C in equation I the value of B comes out to be 0 122. Similarly taking into consideration the third and fourth steps, the equations may be written as follows :

$$0{\cdot}15 = B + C \times 41{\cdot}66 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots III$$

and $$0{\cdot}164 = B + C \times 59{\cdot}00 \quad \ldots\ldots\ldots\ldots\ldots\ldots IV.$$

After solving III and IV the value of B and C are 0·1162 and 0 00081 respectively.

From the above it is seen that the values of B and C calculated by the graphical method and from the proposed simplified solution are comparable. Hence this proposed method of calculating aquifer loss constant and well loss constant may be used conveniently.

Central Ground Water Board, P. G. ADYALKAR.
Nagpur, *November* 27, 1975. V. V. S. MANI.
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A New Disease of Sword Bean

The authors have come across an interesting disease of sword bean (*Canavalia ensiformis* DC). The disease initially shows dark-brown to black spots on the fruit, which later on coalesce to form irregular lesions. In the advanced stage not only the lesions assume bigger size but also small round black bodies make their appearance. Isolations from the diseased portions revealed it to be *Coleophoma empetri* (Rostr.) Patrak in culture (IMI 190741).

The fungus was claimed as pathogen only after satisfying the Koch's postulates. The artificial inoculations were successful when the fruits were injured with the help of sterile scalpel. Perusal of the literature[1] revealed that it has not been reported either from India or elsewhere. This forms the new genus record for India.

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A New Leaf Blight of *Peristrophe bicalyculata*

Peristrophe bicalyculata L. grows abundantly as a weed in gardens, wastelands, grasslands and along the sides of footpath and roads. A severe leaf blight resulting in defoliation was observed on this plant in Meerut during September–October, 1975. The chief characteristic symptoms on the leaf are brownish, depressed, necrotic areas, surrounded by reddish to dark brown, slightly raised margins. The disease appears as small, round, brownish spots which become darker as they enlarge. Such spots sooner or later coalesce with each other forming large necrotic areas, chiefly along the margins of leaves. These lesions sooner or later are shed from leaves, leaving behind distinct holes. Severely infected leaves tend to roll up from the margins, get shrivelled and finally get detached from the plant.

Microscopic examination of preparations from diseased leaves and culture prepared from such leaves revealed the presence of a fungus, which was identified as *Colletotrichum crossandrae* Patel, Kamat and Pande. Pathogenicity tests were made by making cross inoculations on the present host and on three other plants, *Crossandra infundibuliformis*, *Ruellia tuberosa*, and *Barlaria* sp. of the host family. Successful infection, with symptoms characteristic to those observed in the field, developed only on the host plant indicating the host specificity of the present fungus. Cross inoculations of leaves of the above-said four plants with the isolate from *Crossandra infundibuliformis*, showed the development of characteristic symptoms only on *C. infundibuliformis*.

Although, minor insignificant differences in size of aceruvuli, setae and shape and size of conidia, in its morphological characters the present fungus resembled *Colletotrichum crossandrae*, reported earlier from India on *Crossandra infundibuliformis*[6]. Athough, shape and size of conidia, presence or absence of sclerotia and chlamydospores, shape and size of appressoria and acervuli, host range[12, 13] and pathogenicity and cross inoculation tests[3, 4, 5, 13] have been used in the past as the criteria in delineation of species in the genus *Colletotrichum*, morphologic features and host specificity of the present fungus, as reported herein, seem hardly of a magnitude for a justified differentiation of a new species in the genus. More or less similar views about morphologic characters[7, 9, 11] and host specificity[1, 8–10] as criteria of less value for delineation of species in this genus have also been expressed earlier. Since the fungus reported herein is host-specific, and when compared with *Colletotrichum crossandrae* shows insignificant variations only in respect of some of the morphologic features, it seems likely that the present fungus is an ecological variant of *C. crossandrae*. It has already been shown earlier that dimensions of acervuli, setae, etc., fluctuate in the same species of *Colletotrichum* on different hosts[2] and being influenced by the environment and the substratum[8].

The herbarium specimen of the type material and culture (C.H. MCM, 205) are deposited in the cryptogamic herbarium, School of Plant Morphology, Meerut College, Meerut.

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* Original not seen.