

* During the discussion on this paper it was mentioned that in the Tanjore delta and some other paddy growing areas, if susceptible varieties are planted not later than the end of August, the plants generally escaped blast infection. The present paper therefore corroborated this common observation. The value of the present findings is the demonstration that late planting would ensure blast infection and this could be taken advantage of in testing for resistance to the disease.

It was suggested that the correlation between dew formation and blast incidence should be worked out. In reply it was pointed out that the effect of moisture on blast development is already well known but the effect of night temperature on infection has been recently elucidated and is not so well known.

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3. TOXIN PRODUCTION IN *Piricularia oryzae* Cav.

by

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A toxic principle was found in the culture filtrate of *Piricularia oryzae* Cav. the rice blast pathogen, when grown in Czapek — Dox liquid medium. The toxin temporarily inhibited the germination of blast susceptible varieties of rice. It also inhibited plumule elongation in blast susceptible rice varieties, but in blast resistant varieties there was no significant inhibition. The toxin did not affect seeds of *Sorghum vulgare*, *Eleusine coracana*, *Pennisetum typhoides* and *Setaria italica*. The possibility of utilising the toxin for a preliminary screening of rice varieties for resistance to the blast diseases is indicated.

* The following questions were raised during the discussion on this paper: 1. Whether the toxicity of the culture filtrate could be due to the presence of auxins or growth substances and whether the effect of the diluted filtrate on paddy seeds was tried. 2. Whether the inhibition of plumule elongation was reversible. 3. Whether there was any correlation between the growth rates of the fungus isolates and toxin production and 4. Whether other species of *Piricularia* like the one on *ragi* produced any toxin.

The following replies were furnished: 1. The exact nature of the toxic principle is being investigated. However, Japanese workers have isolated two substances: A picolinic acid and piricularin from the culture filtrates of *P. oryzae*. The diluted culture filtrate did not stimulate plumule growth suggesting thereby that no auxins are probably involved. 2. The inhibition was reversible by washing the treated seeds in water. 3. The toxin producing ability of several isolates of the pathogen is being investigated. 4. No information on the toxin production by other species of *Piricularia* is available.

4. STUDIES ON THE SIGATOKA LEAF SPOT OF BANANA-I

by

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Cercospora musae Zimm. has been described from several banana varieties and the perfect form of the pathogen has been recorded for the first time from India and identified as *Mycosphaerella musicola* Leach. The isolates of *C. musae*

closely agreed with the type description of the pathogen but there was variation in the size range of the fruiting bodies and the spores among the isolates from the various varieties and also from the strains described from other regions. Whether these differences are also accompanied by physiologic variation among these isolates is being investigated. The *Mycosphaerella* which was found in constant association with the *Cercospora* was brought into culture by obtaining ascospores using the ascospore discharge plate method described by Leach and single ascospore cultures were found to produce conidia of *C. musae*. So far only *M. musicola* from banana has been known to produce conidia in cultures and confirmed the identification of the present *Mycosphaerella* as *M. musicola*. Several banana varieties were observed in the field for their susceptibility to leaf spot. *Musa balbisiana* and its clone *Ela vazhai*, *Athiya Kol* and *Kallu bale* were found to be resistant as judged from disease intensity grading in the field under natural infection. Varieties of *Vamana Keli* and *Monthan* groups exhibited high susceptibility to leaf spot and the varieties under *Kunnan* group were only moderately susceptible; varieties under the other groups varied in their susceptibility. It is interesting to note that the cultivated variety *kaali* is resistant to leaf spot.

* The author furnished the following information in response to the questions raised during the discussion. The fungus penetrated the host leaf through the stomata on the lower surface of the spindle leaf. The perfect stage of the culture has not yet been obtained *in vitro* culture. Bordeaux mixture does not effectively control the ascospore infection but is effective in keeping down the conidial inoculum. This was probably because ascospores are all to germinate and cause infection without the presence of actual water drops while the conidia were unable to do so and required actual water drops. The ascospores were discharged only at high levels of humidity.

5. SOME EXPERIMENTS ON THE FUNGICIDAL CONTROL OF LEAF DISEASES OF *Sorghum*

by

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Sorghum is subject to leaf diseases incited by *Cercospora sorghi* E. & E. and *Bipolaris turcicum* (Pass) Shoemaker. The yield of grain and quality of straw is often adversely affected. Field experiments to control the diseases were conducted in 1961 and 1962 using Co. 1 (rainfed) and Co. 18 (irrigated) varieties of *Sorghum* respectively. The fungicides used in the first experiment were Dithane Z. 78, Flit 406, Sulphur dust, Ferbam, Ziram, Microcop, Colloidal copper, Wettable sulphur, Dithane D. 14, Bordeaux mixture and Copper oxychloride. The above treatments were applied thrice at monthly intervals. In the subsequent year Bordeaux mixture, Copper oxychloride, Flit 406, Dithane Z. 78 and Dithane M 22 were applied at weekly and fortnightly intervals. The weekly sprayed plots received 7 sprayings in all while the fortnightly sprayed plots received 4 sprayings.

In the first experiment Dithane Z.78 recorded the highest grain yield (27.7%) over untreated control which is significantly superior to Ferbam, Copper oxychloride, Bordeaux mixture and Colloidal Copper. Treatments with Copper fungicides gave better control of both the diseases but reduced the yield when