FUNGI ASSOCIATED WITH THE NEW MALADY OF COFFEE IN SOUTH INDIA*

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ABSTRACT

A marked decline in the coffee yields was first noticed in Mysore during the monsoon period of 1957. The leading symptom which manifests between March/May was found to be chlorosis and epinasty of penultimate or subpenultimate pair of leaves followed by their death and the extension of necrosis from the leaf scar into the internodes. Occasionally, browning of the pith and intercellular mycelium was noticed. Other symptoms attributed to the New Malady are the die-back of productive branches, crinkling of leaves, witches’ broom-like growth, shortening of internodes, etc.

In soil mycological studies, 48 species of fungi were isolated in this laboratory of which the following are potential pathogens:


In the aerial parts, *Colletotrichum coffeanum* Noack was the most frequent isolate. This fungus was present on apparently healthy plants as a part of the surface mycoflora. The perfect stage of this fungus, *Glomerella cingulata* (Stonem.) Spauld. et Schrenk. was also isolated though it was not common. *Colletotrichum coffeanum* was found associated with lesions on leaves, berries and twigs. A total of 87 species of fungi was isolated from different sources, 20 of which are potential pathogens. While the etiology of the Malady is still obscure, the evidence we have, indicates that *Colletotrichum coffeanum* Noack may be the fungus involved in the disease.

There is heavy sporulation of *Colletotrichum* with the first showers in April/May period and in order to reduce the initial inoculum load, a pre-blossom spray in March is now recommended with encouraging results.

A peculiar decline of coffee which was first noticed during the monsoon of 1957 in South and West Mysore assumed serious proportions by early 1959 with the wide spread die-back and die-forward of growing branches, following blossom showers. The disease was found to be marked in old stands of Arabica coffee. The Balehonnur station selections were also affected, but, not to the same degree as the old Kents.

The leading symptoms of the malady as observed by us in the last 7 years (Agnihothrudu, 1964 a, b, c; 1965, a, b, c, d; and 1966) are: The growing buds or terminal leaves generally on the tertiary and at times on the secondary branches show necrosis. In several instances the penultimate or the sub-penultimate pair of leaves are shed and the necrosis extends from the leaf scar. Very often when the subpenultimate pair of leaves are affected, the terminal and penultimate leaves show chlorosis and epinasty. Occasionally, the bushes are affected only on one side, the other side(s) remaining apparently unaffected. Sometimes a fungal mycelium was noticed in the cambial region accompanying the brown discolouration in vessels, tracheids and xylem parenchyma. Besides the above, (1) goose-neck like growth of tertiary branches, degrees, (2) bluish-green coriaceous foliage, (3) leaf chlorosis of different, (4) witches’ broom growth, (5) shortening of inter-nodes, (6) rosetting of leaves were observed. It is apparent that a whole gamut of symptoms has been clubbed under the New Malady. In order to sort out the individual groups of symptoms and establish the etiology, we have chosen 27 estates in Coorg, Saklespur and Hassan zones with investigation blocks (Agnihothrudu, 1968).

**Soil Mycological Studies**

As one of the phases of investigation, soil biological studies were conducted both in the soil away from roots and in the rhizosphere region also (Agnihothrudu, 1965 b, 1965 c); Two species of *Fusarium*, belonging to the *Elegans* and *Martella*, the mycelia of which were intercellular in the dead roots and collar of the plants were encountered. Over 130 soil samples were analysed using Warcup (1950) method and for root fungi Agnihothrudu’s (1953) method. The total number of fungal species recorded was 48 out of which the following are potential pathogens: *Botryodiplodia theobromae* Pat., *Fusarium semitectum* Berk. et Rav., *F. oxysporum* Schelcht., *F. solani* (Mart.) App. et Wr., *F. stilboides* Wr. (= *F. lateritium* Nees.), *Hypomyces* sp. and *Nectria haematococca* Berk. et Br.