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ANTHRACNOSE — A NEW DISEASE OF SMALL CARDAMOM

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SMALL cardamom (*Elettaria cardamomum* Maton) popularly known as the 'Queen of Spices' is an important spice crop cultivated on a large scale in the western ghats of South India. The crop is susceptible to many fungal, bacterial and viral diseases which seriously affect the production¹. During 1985-86 crop season, incidence of a new disease on cardamom capsules in the form of brown spots was observed. Subsequently, similar symptoms on capsules were noticed in many cardamom plantations in Udumbanchola and Vandiperiyar areas of Idukki District of Kerala and Anamalai areas in Tamil Nadu. The disease was noticed during September to December. In the subsequent cropping season, the disease appeared in increasing proportions ranging between 10 and 28% in Anamalai areas.

Symptoms of the disease, first appeared on fresh capsules as small water soaked spots, later developed into characteristic reddish brown lesions (figure 1). These lesions were round to oval in shape ranging between 1 and 2 mm in diameter and on maturation developed characteristic reddish brown colour with more or less light coloured soft sunken centres. The lesions showed distinct periphery and depressed centres resembling typical anthracnose symptoms. The affected capsules showed 1-6 lesions per capsule. Disease symptoms were clearly visible on cured capsules also.

The fungus was isolated on potato dextrose agar medium by plating the young lesions under aseptic conditions.

Microscopic and cultural studies revealed the association of the fungus *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. with the disease. The fungus produced dark brown coloured setae and abundant cylindrical straight conidia ranging from 12 to 24 μm \times 2.4 to 5 μm within one week after plating in the medium. The pathogenicity of the fungus was tested by spraying the conidial suspension from 7-day-old cultures² on capsules of live plants in the field and on detached capsules under laboratory conditions. The capsules were surface-sterilized with 1% sodium hypochlorite and thor-



Figure 1. Symptoms of anthracnose on green capsules of cardamom.

oughly washed with sterile water just before inoculation. Symptoms typical of anthracnose lesions were observed on the 10th day after inoculation. In detached capsules tested under laboratory conditions symptoms initiated within 7 days after inoculation. The fungus was reisolated from artificially infected capsules. There was no significant differences in disease symptoms when pathogenicity tests were done under *in vitro* and *in vivo* conditions except that in the former the symptoms initiated within a shorter period. The culture has been deposited in the Herbarium of CMI, Kew, England under reference No: I.M.I. 318652.

Colletotrichum sp. has been reported to cause leaf spot in another zingiberaceous crop, turmeric³ (*Curcuma longa*) and in a wide variety of other crops⁴. The *Xanthomonas* sp. induced blister-like symptoms on cardamom capsules reported earlier⁵ seems to be entirely different from the present one. A review of the literature revealed that *C. gloeosporioides* has not earlier been reported as pathogenic in cardamom. Therefore, this report constitutes a new record of the fungus on small cardamom.

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