

# Etiology and Control of Chenthal Disease of Cardamom

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Cardamom (*Elettaria cardamomum*. Maton.) is indigenous to the moist, green forests of the Western ghats. Fully developed plants are 2-4 meters in height with tall pseudostems formed of encircling leaf sheaths. The underground stem is the rhizome with a shallow root system. Leaves are simple, lanceolate and distichous with short petioles and measure about 30-50 cm in length and 10-15 cm in width. Flowers emerge on panicles from the stem during April to August and fruits mature in about 3-6 months after flowering and contain 15-20 seeds in each capsul.

## Symptoms of Disease

Chenthal disease prevalent in the high ranges of Kerala is a new disease of cardamom. The initial symptom of the disease is the appearance of elongated water-soaked lesions of varying size on the abaxial surface of young leaves. The lesions generally appears first in the second leaf, while the first leaf is free of any spots. In the healthy plant the leaf is tender and silky to touch, but in the diseased, it is leathery. The lesions turn brown to dark with pale yellow halos. They tend to develop near the leaf margin and progress towards the midrib. As the withering of the leaves progresses, the pseudostems wilt. New shoots emerging after the incidence of the disease are reduced in size. They contract the infection around three or four leaf stage. The progress culminates in total crop loss. Flowers set after the development of the disease fail to develop. Starting from the tip downwards the inflorescence dries up. The affected gardens present a burnt appearance.

## Causative Agent

The lesions on the leaves revealed the presence of a gram positive rod shaped bacterium classified as *Corynebacterium*. One year old cardamom seedlings were sprayed with aqueous suspension of the bacterium. Young leaves showed watersoaked lesions in less than 12 h. Other typical lesions developed in 3-6 days. The leaves withered within a fortnight. The pathogen was reisolated from initial as well as old lesions on the leaves.

## Control Measures

Biossary tests and field trials indicated the efficiency of Penicillin in controlling the disease. In biossary the antibiotic at a concentration of 1 mcg per ml completely inhibited the growth of the pathogen. In a field trial 25 clumps from a chenthal affected spot were selected, each having an average of 15-20 pseudostems. The plants were sprayed with 100 mcg per ml solution of penicillin for 3 consecutive days followed by a second round of spray after 30 days. After 60 days of spraying treated plants showed marked improvement while untreated plants deteriorated. Another plot of 217 plants treated with Penicillin showed general improvement after 60 days.

In cardamom plantations mulching with trashed leaves and old pseudostems is a common practice. It is preferable to discontinue this practice in chenthal affected areas. These leaves and pseudostems may be removed and destroyed.



1. A HEALTHY CLUMP
2. A CHENTHAL AFFECTED CLUMP
3. TYPICAL LESIONS

