

Citrus Canker Disease

Introduction

Citrus canker disease caused by bacterium *Xanthomonas citri* is one of the most conspicuous diseases in the citrus orchards of India. It is a serious menace to our most valued citrus orchards causing objectionable blemishes on the fruit. The disease causes serious damage in India, China, Japan and Java. The pathogen incites severe canker disease in a number of citrus species on stems, leaves and fruits. The disease attacks most of the species/varieties of citrus. The most susceptible species are the acid lime plants, the sweet orange and the grape fruit.

Symptoms

The disease is characterized by brown, scabby, irregular spots surrounded by dark brown glossy margin on leaves, twigs, older branches and fruits. The leaf lesions first appear as small, round watery, translucent spots. They are raised and become yellowish brown. The spots initially develop on the lower surface of the leaf and then on the both the surfaces. With the progress of the disease, these spots turn white or greyish, rupture in the centre and become rough and corky. The spot increases in size up to 1 cm. in diameter. Often coalescing leaf fall is caused by such spots on the petioles and midrib of leaves. The disease survives on old branches of affected trees and spreads in the next rainy season. The lesions on the twigs are usually irregular in form. The lesions on the fruit are similar to those on the leaves but lack the yellow halo.

Causal Organism

The causal organism is the bacterial pathogen *Xanthomonas citri* (Hase) Dowson. The bacterium cell is rod shaped; forming chains or capsule produces no spores. It consists of a short, motile rod (1.5-2.0 x 0.5- 0.75 μ) furnished with a single polar flagellum (monotrichous). It lacks endospore formation. It is a gram negative, aerobic form surrounded by a mucilaginous capsule. The climate factors which favour the disease are the mild temperature and wet weather. The most suitable range of temperature appears to be 20°C to 30°C.

Disease Cycle

Infection takes place through the stomata and wounds. The disease is not soil borne. The pathogen perennates in the old lesions on the twigs still attached to the host plant. From there it is carried by driving rains and by insects to new localities. Main functions as the chief agent of dissemination by planting infected nursery stock in new localities.

Control

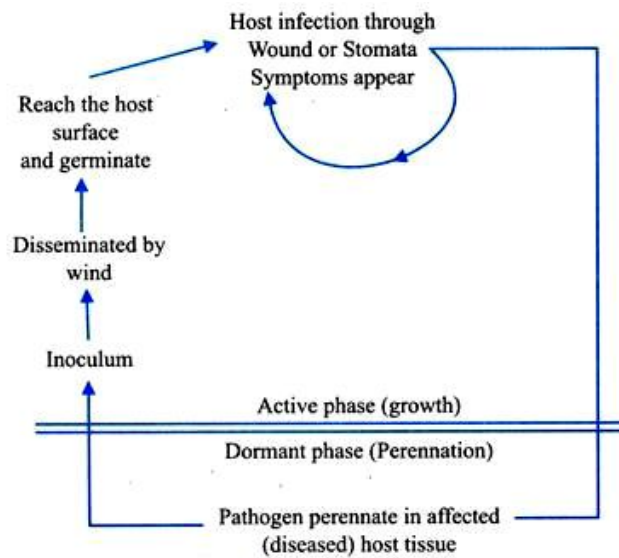
- i. The disease is controlled by the eradication of diseased trees. This is accomplished by removing the trees with advanced infection and burning them.
- ii. The infected trees may be cured by removing the diseased foliage and branches with pruning scissors and then spraying the trees with one percent Bordeaux mixture at regular intervals.
- iii. The use of disease free nursery stock for planting is the best method of controlling the disease.
- iv. The fallen infected leaves and twigs should be collected and burnt.
- v. Spraying with Bordeaux mixture and lime sulphur is a useful measure to protect the fruit. It should be done during the first three months after the beginning of fruit formation. Spraying should commence before the onset of rains and repeated during the rainy season.
- vi. Citrus nurseries should be raised in places away from the regions of heavy and protracted rainfall. There should be no “khatti” hedge around the nurseries.
- vii. Rangaswamy (1957) reported that the use of antibiotic sprays is useful in controlling the disease. Streptomycin sulphates have been found to be effective.
- viii. Vaheeddudin (1959) found that spraying with neem-cake is effective in controlling citrus canker.



Fig. 1 Cancer on fruit



Fig. 2 Cancer on leaf surface and branch



Sanjay

Fig. 3 Disease cycle of citrus canker