

Studies on seed borne nature of *Colletotrichum capsici* causing seedling blight and its control through chemicals

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ABSTRACT

The seed mycoflora associated with seeds and fruits of fruit rot infected chillies collected from northern Karnataka were detected. *Colletotrichum capsici* was detected in all the samples with or without surface sterilization by 0.1% HgCl₂. In some samples *Alternaria*, *Cercospora*, *Curvularia* and *Fusarium* were also detected. However, these fungi were eliminated by surface sterilization in majority of the seed and fruit samples. *In vitro* evaluation of fungicides revealed that captan (0.1%) and thiram (0.1%) were effective against *C. capsici*. All these fungicide were proved effective when tested in pots in glasshouse.

Key words : Chilli, Anthracnose, Fruit rot, *Colletotrichum capsici*, Seed borne.

INTRODUCTION

The chilli (*Capsicum annuum*), a member of solanaceae family is mainly cultivated as vegetable in many countries including India. Among the many diseases of chillies, seedling blight caused by *Colletotrichum capsici* is a major threat in the cultivation of chillies. The disease is seed transmitted and cause seedling blight or damping off in the nursery. The same pathogen is causing anthracnose and fruit rot in the next stages of plant growth.

Grover and Bousal (1968) during their study found that seeds of chilli obtained from diseased and healthy fruits carried the pathogen both internally and externally leading to damping off of seedlings that died after emergence. Ahmed (1982) studied many seed samples of chilli from different locations, which showed infection of *C. capsici*, resulted into poor germination and low vigour. Manandhar *et al.* (1995) reported *C. capsici* and *C. gloeosporioides* from the seeds of chilli and proved their pathogenicity. Cyclohexamide, agrimycin, zineb and tridemorph were found effective seed treatment chemicals against *C. capsici* (Azad, 1992). In the present study an effort has been made to identify mycoflora associated with fruits and seeds collected from different locations and to find out effective chemical control method to control the disease.

MATERIAL AND METHODS

The chilli fruit and seed samples were collected from different locations of north Karnataka from the infected fields. The mycoflora is detected by following standard blotter technique (Anon, 1999). Sterile petriplates (20 cm) were used in the study, which are lined with sterile moistened blotter paper. Twenty five chilli seeds in each plate and 3 replications of such plates were kept for incubation for five days. After incubation fungal growth was observed in sterio binocular microscope for identification.

In vitro evaluation of seed treatment chemicals was carried out following poison food technique. Per cent inhibition of growth was calculated by using the following formula (Vincent, 1947)

$$I = \frac{100(C-T)}{C}$$

Where: I = Inhibition
C = Rate of growth in control
T = Rate of growth in treatment

The efficiency of chemicals in pot culture was detected by sowing chilli seeds in pots in glasshouse after treating them with fungicides. Untreated seeds were sown as control. Each treatment replicated 4 times. Observations on per cent seedling emergence were taken after 1 month of sowing.

RESULTS AND DISCUSSION

Different fungi that are associated with fruit-surface and seeds of chilli from affected chilli fruits were noted by blotting paper technique (Table 1) *C. capsici* was detected in all the fruit and seed samples with or without surface sterilization, collected from different locations. In addition to this, *Alternaria*, *Curvularia*, *Cercospora* and *Fusarium* were noticed on unsterilized fruit surfaces of 18 varieties from 6 locations while only *Alternaria* and *Curvularia* detected in surface sterilized fruits of 5 varieties collected from 2 locations.

On both sterilized and unsterilized seed surface *Colletotrichum* was detected in all the 18 varieties of 6 locations. In addition to this *Alternaria* (10 varieties of 4 location), *Cercospora* (2 varieties of 1 location) and *Curvularia* (1 variety of 1 location) on unsterilized and only *Alternaria* (2 varieties of 2 location) and *Curvularia* (1 variety of 1 location) were detected.

The percentage of seed mycoflora recorded is given in table 2. The seed infection was more than 50 per cent in 17 samples out of 22 samples collected. HMT-local collected from Hanumanmatti recorded highest seed infection (96%) and lowest germination (15%). In contrast Pant C-1 collected from Dharwad recorded lowest seed infection (8%) and highest germination (68%).

The results of seed transmission studies indicated that

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