Efficacy Of Carbandazim Against Colletotrichum Capsici Causing Leaf Spot Of Turmeric

Dr. Anita Chandrant Dhole
Azad College, Ausa
Dist. Latur

Abstract:
In the present investigation the fungicide carbandazin was tested in the laboratory to find out their efficacy against Colletotrichum capsici. The evaluation was recorded through inhibition of mycelial growth by using food poisoning technique.

Keywords: Colletotrichum capsici, carbandazin.

Introduction:
Turmeric (Curcuma longa L.) is an ancient and sacred spice of India viz. known as “Indian saffron” is an important commercial spice crop grown in India. It is also known as the golden spice of life and is one of the most essential spices used as an important ingredient in culinary all over the world.

The edible part rhizome is mainly used in the commercial, cosmetic and medicinal purposes. The rhizome contains protein (6.3 %), fats (5.1 %), starch (6.1 %) and minerals (3.1 %). The most important chemical components called curcuminoiids which includes curcumin, mentanil yellow, lead chromate etc. (Sambamurthy et al. 1989).

But nowadays turmeric suffering from many diseases and these diseases are responsible for decreased productivity. Among all parts more infection occurs on leaves and thereafter rhizomes. The leaf spot caused by Colletotrichum capsici reducing the more yield as there is reduction in photosynthesis. So the present experimentation gives an idea for management of leaf spot of turmeric caused by Colletotrichum capsici.

Material and methods:
Invitro evaluation of fungicide was carried out by using carbandazin fungicide against the pathogen Colletotrichum capsici. Applied food poisoning technique as used by (Onkar et al. 1993) and using czapek dox agar medium as basal culture medium. The required quantity of fungicide was taken and thoroughly mixed with medium and cooled at 45ºc. Czapek dox in controlled flasks to obtain various concentrations ranging from 1000 to 1000 ug/ml.

The fungicides amended czapek dox agar was then poured in sterilized petriplates (75mm diameter) with its various concentrations. On solidification of czapek dox agar in centre of plates 5mm disc of Colletotrichum capsici was inoculated. And these plates were fully coverd with mycelial growth of the pathogen as studied by Jagtap (2013). The mycelial growth was noted in mm up to 8th day of incubation period at room temperature. The MIC (minimum inhibitory concentration was recorded. The percent control efficacy was calculated.

Results and discussion:
The sensitivity of Colletotrichum capsici against different concentrations of carbandazim was determined by the poisoning technique. The treatment of carbandazim at different concentrations ranging from 100 to 700ug/ml. as shown in plate XII and table no. 1. ± ± ± ± ± ± Carbandazim showed gradual inhibition of the growth of Colletotrichum capsici up to 700ug/ml. the minimum inhibitory concentration was found at 600ug/ml and PCE was 88.20 on eighth day of incubation period. It was found that as the concentration increased the PCE also increased.

At 100ug/ml the PCE of Colletotrichum capsici was found on eighth day was 20.34 at 200ug/ml it was 33.67, 48.20, 65.61, 74.20, 88.20 respectively.
Plate: XII showing effect of Carbandazim on Colletotrichum capsici

Table: 01 Effect of Carbandazim on PCE of Colletotrichum capsici

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<tr>
<th>Conc. (ug/ml)</th>
<th>Percent control efficacy(PCE)</th>
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<tr>
<td></td>
<td>Incubation period(days)</td>
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<td>1</td>
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<tr>
<td>100</td>
<td>82.20</td>
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<td>C.D. at P=0.01</td>
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<tr>
<td>C.D. at P=0.05</td>
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References: