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Mycotoxic Effect of Plants Against *Collletotrichum capsici* the Pathogen of Anthracnose of Chilli (*Capsicum annuum* L.)

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Aqueous extract of 13 plants were evaluated for their antifungal activity against *Colletotrichum capsici.* All extracts showed antifungal activity at varying degree from 50.00 to 77.33 percent. Among them, *Tridax procumbens* (77.33%) exhibited highest percent inhibition of mycelial growth of *C. capsici,* followed by *Hyptis sauveolens* (71.00 %). All extracts showed more inhibition of mycelial growth as compared to fungicide Dithane M-45.

Key words: Antifungal activity, aqueous extract, *Colletotrichum capsici* and *Tridax procumbens.*

The fungi are major disease causing agents on plants and sometimes may loss up to 90 percent agricultural yield. Various fungicides have been used to control the particular disease of plants. Due to indiscriminate use of fungicides, various pathogens had developed resistance against fungicide[1]. Besides, use of fungicides for control of diseases augmenting water and soil pollutions. Some are affecting the non-target organisms including men also. Hence there is urgent need to search alternate fungicidal compounds, which should be safe, eco-friendly, cheap, easily degradable in soil. Anthracnose and fruit rot of chilli (*Capsicum annuum* L.) found in India, where it occurs in severe form especially in southern states of India[2]. The fungus *C. capsici* is seed borne. In the present study, 13 plants were tested against *C. capsici* for their antifungal activity.

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MATERIAL AND METHODS

Infection free, mature parts of plants were freshly collected from Government Institute of Science campus Aurangabad. The plant parts were washed with tap water followed by sterile water. Plant material was shed dried and fine powder prepared. Fungus *Colletotrichum capsici* was isolated from chilli and preserved in PDA slants for further studies at 4°C.

Preparation of crude extracts and antifungal assay

Two hundreds grams of fresh parts of plants were used in the form of paste. Then material was boiled in 100 ml distilled water for 20 min. The filtrate was used and incorporated into potato dextrose agar (PDA). The 5 cm disk was inoculated on the plate at centre and incubated at room temperature. Instead of PDA medium, without plant extracts served as control. The fungicide Dithane M-45 (0.2%) was used for comparison. All plats were incubated at 28 ± 2°C and radial growth of colony was measured after seven day of incubation[3]. Each test was performed in triplicate.

RESULTS AND DISCUSSION

All extract significantly inhibited mycelial growth of *C. capsici* (Table 1). Out of which *Tridax procumbens* revealed highest percent inhibition of mycelial growth, followed by *Hyptis suaveolens*. These plants are well known for their medicinal values.

Antifungal activity of same plants also reported against different fungi[4-7]. Some result is contrasting with[8]. They did not find antifungal activity by *L. camara* against *C. capsici*. On the other hand, in present result *L. camara* inhibited over 60% mycelial growth of *C. capsici*. This difference may be occur due to geographical area where plants collected, different extraction methods of antifungal activity, age of plant, etc. *T. procumbens* is known for wound healing property but antifungal activities are not found in previous literature. All plants inhibited more than 50 percent mycelial growth of pathogen. These extracts can be used effectively to control the anthracnose disease of chilli. Further study is necessary for effective use in field.

Table 1. Inhibitory effect of aqueous extracts against *Colletotrichum capsici*

Plant species	Family	Part(s) used	% inhibition of mycelial growth
Hyptis suaveolens L.	Lamiaceae	Leaves	71.00
Mentha spicata L.	Lamiaceae	Leaves	66.68
Lantana camara L.	Verbenaceae	Leaves	60.00
Boerhavia repens L.	Verbenaceae	Leaves	58.33
Ocimum sanctum L.	Lamiaceae	Leaves	60.00
Azardirachta india	Meliaceae	Leaves	60.33
Ipomea cairica (L.) Sweet	Convolvulaceae	Leaves	58.33
Tridex procumbens L.	Asteraceae	Leaves	77.33
Eucalyptus citridora Hook	Myrtaceae	Leaves	68.00
Allium sativum L.	Liliaceae	Bulb	55.45
Zingiber officinale L.	Zingiberaceae	Rhizome	54.54
Clerodendrum inerme(L.) Gaerth	Verbenaceae	Leaves	57.00
Allium cepa L.	Liliaceae	Bulb	50.00
Dithane M-45 (0.2%)	-	-	21.13

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