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Studies on antifungal properties of some plant extracts agaisnt anthracnose of chilli (*Capsicum annuum* L.) caused by *Colletotrichum capsic*

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SUMMARY

To study the verious antifungal properties of ten medicinal plant extracts against anthracnose of chilli caused by *Colletotrichum capsici* . The antifungal properties of plant species *viz.*, *Cassia fistula, Callistemon lanceolatus, Duranta* spp., *Delonix regia, Lantana camera, Pongamia pinnata, Nerium indicum, Tagetus erecta, Eucalyptus citriodora, Azadirachta indica* was tested by poisoned food technique . Out of above ten plant extracts, *Callistemon lanceolatus* was found most effective in inhibiting mycelial growth of *C. capsic* under *in-vitro* condition. From the pot culture experiment, the antifungal properties of *Callistemon lanceolatus* were tested after extracting in 10 per cent concentration of five solvents *viz.*, acetic acid, acetone, ethanol, petroleum ether and chloroform alongwith distilled water as sixth solvent. Among the six solvents used for extraction of antifungal properties of *Callistemon lanceolatus* at 1:100 dilutions acetic acid showed minimum disease incidence and intensity of anthracnose of chilli under greenhouse condition.

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Anthracnose of chilli caused by *Colletotrichum capsici* , a coleomycetous fungus has been reported to be the most serious and destructive disease in the chilli growing areas of the country thereby causing substantial quantitative and qualitative losses. Keeping in mind, the economic importance of the disease, this disease can be controlled by using chemical fungicides. However, the indiscriminate use of chemicals is hazardous to microbial population, living beings and it would also lead to a serious soil and water pollution .Chilli is also used for direct consumption. Spraying of fungicides will cause residual effects. Hence, to find out alternative mean to chemical fungicides, botanical pesticides or biological agents should be used. With a view to identify effective plant extracts against *Colletotrichum capsici*, the causal organism of Anthracnose of chilli, present investigations were undertaken during *Kharif*, 2005 in laboratory with objective, screening of plant extracts for antifungal properties *in vitro* and effect of dilution of plant extracts for antifungal properties under greenhouse condition.

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MATERIALS AND METHODS

The pure culture of the pathogen isolated from ripened diseased fruits showing typical symptoms of anthracnose like circular, sunken with black margin spot covered with a pinkish mass of fungal spores and concentric markings with dark fructifications representing the fungal acervuli on common laboratory culture medium potato dextrose agar (PDA). Isolated and purified pathogen was sub-cultured on P.D.A. slants and kept at 28 $\pm$ 1^{0}C for seven to eight days for good growth. Such slants were preserved in the refrigeration at 5 to 10^{0}C and the isolate was sub-cultured once in a month and also used for *in vitro* studies. The crude leaf extracts of *Cassia fistula, Callistemon lanceolatus, Duranta* spp., *Delonix regia, Lantana camera, Pongamia pinnata, Nerium indicum, Tagetus erecta, Eucalyptus citriodora, Azadirachta indica* were prepared by crude extraction method and used for screening. In this method, ten g of the plants were weighed and thoroughly washed. The plant material was then crushed in the mortar and pestle by adding 10 ml of sterilized water. After that the crushed material was strained through double layered muslin cloth and filter paper (Whatman No. 1) and the filtrate obtained was used in