

Research Paper :

## Identification of bacterial isolates for their antifungal activity against *Fusarium oxysporum* f. sp. *carthami*



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*International Journal of Plant Protection*, Vol. 4 No. 1 (April, 2011) : 158-160

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### SUMMARY

Safflower suffers heavily from wilt incited by *Fusarium oxysporum* f. sp. *carthami* in Maharashtra State especially in Marathwada region. Present study was conducted to evaluate the local bacterial isolates, isolated from rhizosphere soil, for their antifungal activity against the pathogen in the laboratory by dual culture technique. In all, promising 12 bacterial isolates were evaluated for their antifungal activity. Results indicated that, all the bacterial isolates suppressed the pathogen. Maximum antifungal activity has been shown by bacterial isolate B1 followed by *Pseudomonas* sp. (B<sub>6</sub> and B<sub>5</sub>).

Kurundkar, B.P. and Mahajan, S.B. (2011). Identification of bacterial isolates for their antifungal activity against *Fusarium oxysporum* f. sp. *carthami*. *Internat. J. Pl. Protec.*, 4(1): 158-160.

### Key words :

Nutrient agar,  
Antifungal  
activity, Bacterial  
isolates, Wilt,  
inhibition, Over  
run

Safflower is one of the important oilseed crops of India. Country has highest acreage with largest production of safflower grains (Anonymous, 2001). Crop is mainly grown under rainfed conditions in various soils mainly of Andhra Pradesh, Karnataka and Maharashtra states. Crop suffers from various biotic and abiotic stresses resulting in substantially poor yields. Wilt caused by *Fusarium oxysporum* f. sp. *carthami* has recently become one of the serious problems of the crop and losses to the tune of 61 % have been reported (Anonymous, 2001). Since, the disease is seed and soil borne and the crop is low input crop, is difficult to manage through cultural and chemical means. Resistant varieties for commercial cultivation are not available. Therefore, cultivators are actually defenseless against the melody and in some hot spot areas of Marathwada region have opted for alternate crop. Considering all the aforesaid aspects, it was thought worth while to evaluate local bacterial isolates for their efficacy in reducing growth of *F. oxysporum* f. sp. *carthami* to be considered for biological management.

### MATERIALS AND METHODS

Rhizosphere samples from different locations of Marathwada region were collected for isolation of antagonistic bacterial organisms. Isolation of bacterial organisms was carried out by dilution and pour plate method on Nutrient agar (NA), King's *et al.*, B and Soil extract agar media under aseptic conditions. Well isolated colonies of bacterial organisms were picked by inoculating needle under aseptic condition and were transferred to plate containing sterilized NA medium under aseptic conditions. Purification of bacterial organisms was carried out by streaking. These were identified by studying colony characters, pigmentation on media, morphology of bacterial cells, gram reactions and growth on specific media. After expelling common contaminants, 10 bacterial organisms were selected to study their antagonistic effect against *Fusarium oxysporum* f. sp. *carthami* in dual culture on NA. For this, *F. oxysporum* f. sp. *carthami* and test organisms were separately inoculated to sterilized Petriplates (90 mm diameter) containing sterilized NA. A week old growth of these organisms was used for testing in dual culture. A 5 mm disc of the *F. oxysporum* f. sp. *carthami* was placed

Received :  
December, 2010  
Accepted :  
February, 2011