
Isolation and screening of potential bacterial antagonists from forest floor soils against *Colletotrichum truncatum* causing anthracnose disease in chilli (*Capsicum annuum*)

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Possible utilization of bacterial antagonism as a reliable alternative in controlling anthracnose disease in chilli was assessed in this study. Rhizosphere soil taken from a forest floor was used as the source of antagonists against the chilli anthracnose pathogen, *Colletotrichum truncatum*. Bacteria were isolated through serial dilution procedure and the contrasting bacterial colonies were initially screened for their antagonistic property by spotting them on a spore lawn of the *C. truncatum* on potato dextrose agar medium (PDA). Bacteria which gave a clear zone on spore lawn were then subjected to co-cultivation and dual culture assay in triplicates on PDA under *in vitro* conditions. The mean radial mycelial growth of the fungus was measured against each bacterial isolate seven and fourteen days after culturing and the percent inhibition of radial growth was calculated compared with the control. Out of 104 contrasting bacterial colonies isolated from forest floor soils, 18 exhibited antagonism among which 13 isolates significantly ($p < 0.05$) inhibited the growth of *C. truncatum* in co-cultivation ($p < 0.05$). Dual culture assay with selected 13 bacterial isolates, revealed that in four isolates, the radial growth inhibition of *C. truncatum* was greater than 90% at $p < 0.05$ level. The selected antagonists were coded as F2, F65, F79 and F80 and were used for further analysis. The selected promising antagonists almost totally inhibited an average of 96.90% of the mycelial growth of *C. truncatum in vitro*. Microscopic studies of fungal hyphae subjected to the antagonism showed many deformations such as thickening, swelling and malformation. These results suggest that above mentioned bacterial isolates can be further studied as potential biocontrol agents in controlling anthracnose disease in chilli.

Key words: Antagonists, bacteria, Chilli anthracnose, *Colletotrichum truncatum*, forest floor soil

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