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Title: Morphological variability in *Ralstonia solanacearum* and *Fusarium oxysporum* causing wilt complex disease of brinjal and their management

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**Abstract:** The systemic investigation revealed that wilt complex in brinjal was found to be infected with *R. solanacearum* and *F. oxysporum* at all seven locations surveyed. Maximum wilt per cent was found at Bero followed by Sukurhuttu and Mandar. The highest wilt per cent 65.40 per cent was recorded from Bero, Ranchi. To identify *R. solanacearum* different biochemical test were carried out among which Indole production test and Methyl red test were negative. Morphological studies of *R. solanacearum* revealed that the dimension were in the range of 1.22-2.52 x 0.482-0.790  $\mu$ m. The cultural characters of *F. oxysporum* were observed on PDA and the mycelium colour was white to dull white, uniform to dense fluffy and colony raised with pinkish to violet at the centre. The size of the micro conidia ranged between 4.21- 9.13 x 3.16-5.14  $\mu$ m, the size of macro conidia ranged from 13.63-24.60 x 4.21-5.91  $\mu$ m, mycelium width ranged from 3.51-6.31  $\mu$ m and size of chlamydospores was 6.85-13.00 x 6.15-10.17  $\mu$ m. Among all the four different semisolid media maximum radial growth of Fom 3 isolate (44.66) mm was observed on Richard's media. Among four liquid media, Richard's was best for Fom isolates with maximum mycelium weight of 2.09 gram for Fom 2 isolate. In racial characterization through host differential reaction CBH-5, CBH-6 and CBH- 25 were resistant against the pathogen. On the basis of utilization of dulcitol, Rsm 3 and Rsm 5 were determined as biovar IV A. Saaf and Bavistine were completely inhibitory to the pathogen at 100 ppm whereas Mancozeb completely inhibited except Fom 5. Streptocycline at 500 ppm was found to be most effective against *R. solanacearum*. Bioassay of biocontrol agents revealed that in monoculture of antagonist and pathogen, ThR showed maximum 90.00 mm colony diameter on PDA medium within 72 hours of inoculation. The rate of mycoparasitism was faster in ThR followed by ThD and TvD. Different treatment combinations were studied for the integrated management of wilt complex and the result revealed that minimum wilt severity and per cent disease control was obtained in Neem cake precolonized with ThD + seedling dip in Blitox @ 5q/ha + 3g/lit.

**Description:** Morphological variability in *Ralstonia solanacearum* and *Fusarium oxysporum* causing wilt complex disease of brinjal and their management

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