A new biocontrol project on grass weeds in Vietnam and Australia

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Grass weeds are a common problem in the world's major cereal crops. A cooperative research project on this problem, sponsored by the Australian Centre for International Agricultural Research, commenced in 1995. The project involves two research institutions in Vietnam, one in Hanoi, surveying the Red River Delta and one in the south in the Mekong Delta and the NSW Agriculture's Research Centre at Orange, Australia. The long-term aim of the project is to develop bioherbicides for grass weeds in both countries. In the first three years of the project fungal pathogens of major weeds are being collected and assessed for their potential. Initial results from the project were displayed.

Efficacy of rhizobacteria as biological control agents of downy brome

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Downy brome, a winter annual grassy weed found in southwestern Saskatchewan and southern Alberta is difficult to control in winter cereals and pasture land by conventional cultural and chemical methods. Several rhizobacteria, isolated from soils in the Canadian prairies, have been shown to suppress growth of downy brome. The effect of several rhizobacteria isolates were tested on downy brome and winter wheat in the laboratory and under controlled environment conditions. In laboratory tests, cell-free culture filtrates (CFCF) from rhizobacterial isolates were incorporated into agar and their effects on downy brome and winter wheat were evaluated. The CFCF from several isolates significantly reduced root-growth of downy brome while little or no deleterious effect on root growth of winter wheat was observed. Efficacy of the rhizobacteria was further tested in soil under controlled environment conditions. Shoot and root dry-weights of downy brome were generally most affected by the rhizobacteria, while there were no significant deleterious effects on shoot height, root length and number of leaves and tillers. Little or no detrimental effects on winter wheat growth were observed by the rhizobacteria when applied under greenhouse conditions. These results indicate that several isolates of rhizobacteria may have potential as biocontrol agents for downy brome in a winter wheat crop.