Host Range of a Deleterious Rhizobacterium for Biological Control of Downy Brome

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*Pseudomonas fluorescens* strain D7 (*P. f. D7*) is a root-colonizing bacterium that inhibits downy brome (*Bromus tectorum* L.) growth. Before commercialization as a biological control agent, strain D7 must be tested for host plant specificity. Agar plate bioassays in the laboratory and plant-soil bioassays in a growth chamber were used to determine the influence of *P. f. D7* on germination and root growth of 45 select plant species common in the western and midwestern United States. In the agar plate bioassay, all accessions of downy brome were inhibited by *P. f. D7*. Root growth of seven *Bromus* spp. was inhibited an average of 80% compared to that of controls in the bioassay. Supernatant of *P. f. D7* reduced root length of dicotyledonous seedlings by 15% compared to control roots in the agar plate bioassay, while roots of non-*Bromus* monocots were reduced from 0 to 86% and only 9 of 25 plant species were inhibited 40% or greater. Among all plant species, only downy brome root growth was significantly inhibited by *P. f. D7* in soil-grown plants. Two of the three accessions tested were inhibited by *P. f. D7* by more than 42%. *Pseudomonas fluorescens* D7 exhibited greater inhibition of root growth and germination in agar plate bioassays than in plant-soil bioassays. Inhibition in soil was specific to the weed downy brome, indicating promise for this organism as a biocontrol agent that will not harm non-target species.