Title Biocontrol activities of *Bacillus amyloliquefaciens* DGA14 isolated from banana fruit surface against banana crown rot-causing pathogens

Author Dionisio G. Alvindia and Keiko T. Natsuaki

Citation Crop Protection, Volume 28, Issue 3, March 2009, Pages 236-242

Keywords Epiphytic bacteria; Antibiosis; Biocontrol agent; Postharvest pathogens

Abstract

Two bacteria, isolated from the surface of banana fruits, one forming a creamy white colony and the other, dry yeast like colony were screened for *in vitro* antagonism toward *Lasiodiplodia theobromae*. Both isolates, identified as *Bacillus amyloliquefaciens*, were further tested for antibiosis against other crown rot-causing pathogens (*Thielaviopsis paradoxa*, *Colletotrichum musae*, and *Fusarium verticillioides*). The creamy white colony strain, coded as *B. amyloliquefaciens* DGA14, was subjected to laboratory and field studies. *B. amyloliquefaciens* DGA14 produced a diffusible metabolite that inhibited all test pathogens in culture. In addition, bacteria moved and attached to pathogens significantly affecting mycelial growth and conidial germination in liquid medium. Following inoculation, *B. amyloliquefaciens* DGA14 survived and colonized banana fruits after 2 d. Interparasitic relationships were observed between the antagonist and pathogens on artificial media and the natural substrate. Postharvest application of *B. amyloliquefaciens* DGA14 in the packing house reduced the incidence of crown rot to a level significantly lower than in fungicide treated or control fruits.