

reduction of disease severity caused by *R. solani* in *in vitro* seedling assay. Most of the antagonists showed varying levels of antagonism against *R. solani*. In addition, few isolates increased the root and shoot length of pepper. From these assay, five isolates were selected for *in vivo* biocontrol studies. Among them, isolates RD4 and SE2 showing highest ability to reduce the disease severity in the *in vitro* seedling assay was found to be the most efficient antagonists against *R. solani* in the *in vivo* biocontrol tests. Further, the relationship between the plant growth promoting/antagonistic potential of the fluorescent pseudomonads and its level of the production of auxiliary activities (siderophore, HCN, β -1,3-glucanase, chitinases, IAA production and phosphate solubilization) were studied.

D-42 Efficacy of A Biological Control Agent, *Bacillus subtilis* Strain BAC03-1 on *Pyricularia grisea*. Yeon Kyu Hong¹, Young Ki Lee², Bong Choon Lee¹, Seok Bo Song¹ and Sung Tae Park¹ ¹Yeongnam Agricultural Research Institute of NICS, RDA, Milyang 627-803, Korea ²National Institute of Agricultural Science and Technology, RDA, 441-707, Korea

A *B. subtilis* strain BAC03-1 in rice has isolated and identified and cultivated antagonistic strains of *Bacillus subtilis* from rice seeds. The disruption of the fungal spores and hypha exposed to the active substances was clearly observed. The MIC on growths of *Pyricularia grisea* was obtained. The ability of *B. subtilis* BAC03-1 to inhibit the fungal diseases in rice; *Pyricularia grisea* was tested *in vitro*. Having cultured both for 48 hours, there was a clear zone between *B. subtilis* strain BAC03-1 and both fungi. The optimal growth conditions in various culture media were investigated. The effectiveness of the antagonists were tested at green house and small field levels. The significant differences of the finding in relative lesion number, size and disease leaf area between the bacilli-treated and disease-control plants were demonstrated.. Keywords: Biological control, *Bacillus subtilis*, rice, *Pyricularia grisea*

D-43 *Bacillus subtilis* Strain BAC03-1 as an Antibiotic Effect on Bacterial Grain Rot of *O. sativa*, *Burkholderia glumae*. Yeon Kyu Hong¹, Young Ki Lee², Bong Choon Lee¹, Jae Bok Hwang¹ and Sung Tae Park¹ ¹Yeongnam Agricultural Research Institute of NICS, RDA, Milyang 627-803, Korea ²National Institute of Agricultural Science and Technology, RDA, 441-707, Korea

Bacillus subtilis Strain BAC03-1 was used for demonstration on antagonistic