

D-56 Application of Induce Systemic Resistance on rice plants by a Plant Growth-Promoting Rhizobacteria, *Bacillus valismortis* EXTN-1. Kyungseok Park and Ming-Shu Chung, Sang-Yeb Lee and Eun-Young Kim. Biological Control Lab. Plant Pathology Division, Department of Agricultural Biology, National Institute of Agricultural Science and Technology Suwon 441-707 Korea

Soil drenching or seed priming of *Bacillus valismortis* strain EXTN-1 stimulated seed germination and growth of rice plants. Furthermore, treatment of *B. valismortis* strain EXTN-1 showed a broad disease-controlling spectrum to the plant diseases caused by viral, bacterial and fungal plant pathogens such as cucumber mosaic virus, tobacco mosaic virus potato virus Y and *Pseudomonas syringae* pv. *lacrymans*, *Ralstonia solanacearum*, *Colletotrichum orbiculare*, *Magnaporthe grishia*, and *Fusarium oxysporum* in various plants as well as rice plants. In seedbed nursery of rice plant, soil drenching after seed soaking with endospore suspension of EXTN-1(10^6 cfu/ml) showed best disease protection against *Magnaporthe grishia* and growth promotion in nursery soil. In the field test, EXTN-1 treatment showed plant growth promotion and increasing yield of rice as well as induced systemic resistance. In conclusion, *B. valismortis* strain EXTN-1 can be used for growth promotion and activation of plant defense on rice plant against multiple diseases in practical

D-57 Selection of bio-control agents against Sclerotinia rot on leafy vegetables in organic farming. Ji-Young Hwang¹, Jee-Sun Han¹, Kyoung-Yul Ryu¹, Yeoung-Seuk Bae², and Hyeong-Jin Jee¹. ¹Organic Farming Technology Division, National Institute of Agricultural Science and Technology and ²Ginseng and Medicinal Crops Division, National Institute of Crop Science, RDA, Suwon, 441-707

Korea Sclerotinia rot caused by *Sclerotinia sclerotiorum* on leafy vegetables is one of the most destructive soil-borne diseases in the organic farming, especially under a greenhouse cultivation. In this study, bio-control potentials of various microbial agents were evaluated. Among the biocontrol agents selected from previous studies, Trichoderma isolates, TSR-4 and TSR-6 showed the highest bio-control activities against the disease on lettuce, head lettuce, chicory, and whorled mallow in vivo and vitro. Among the bacterial agents, Pseudomonas strains, B634-2 and B724 also effectively suppressed the disease development on the leafy vegetables in a magenta box and in a green house pot test. However, biocontrol activities of the agents varied according to the vegetables. TSR-6 showed 66% control value in head lettuce in vivo and 96% in chicory in vitro. In lettuce, the disease was not significantly controlled by