D-45 Mass cell production of *Bacillus subtilis* GL1 used by agro-product. Lee, Jae Pil[1], Sang Hyun Lee[1], Kyung Hee Kim[1] and Byung Ju Moon[2]. [1]Dept. of Forest Diseases and Insect Pests, Korea Forest Research Institute, Seoul 130-712, Korea [2]College of Natural Resources and Life Science, Dong-A University, Busan 604-714, Korea

Several hundred bacterial isolates isolated from various sites on soils through the Korea. Only 15 isolates showed inhibitory effect on mycelial growths off *Cryphonectria parasitica* and *Phytophthora cactorum* and *Fusarium* sp. on PDA. We are selective endospore forming *B. subtilis* GL1 antagonistic isolates. This *B. subtlis* GL1, which showed strongly inhibited fungal growth and antibiotic activities against several plant pathogenic fungi in vitro by producing the antibiotics. We investigated the culture condition like starting pH, temperatures and medium for mass production of bacterial cells in flask and 7L jar ferment. As results, pH is 5 to 5.5, temperatures is 30 to 35℃ and agitation speed is >300rpm for good growth of B. subtilis GL1. Selection of cheap and easy gain carbon sources as corn starch and nitrogen source as biji flour for well growths.

D-46 Effect of chitin on biological control activity of fluorescent pseudomonads against damping off of pepper (*Capsicum annuum*). M. Rajkumar[1], H. M. Kim[1], K. J. Lee[1], W. H. Lee[1], Y. S. Lee[2] and B. T. Oh [3]. [1]Division of Biological Resources Science, Chonbuk National University, Jeonju 561-756, Korea [2]Division of Forest Science, Chonbuk National University, Jeonju 561-756, Korea [3]Department of Environmental System Engineering, Hallym University, Chuncheon 200-702, Korea

The fluorescent pseudomonads were tested alone and in combination with chitin for efficacy in control of damping off disease caused by *Rhizoctonia solani* in pepper plants. These bacteria were isolated from the rhizosphere of pepper plants. In *in vitro* assays, both isolates were antagonistic against *R. solani* and produced high levels of chitinase. Bacterial treatment with chitin was more effective against *R. solani* than the treatment of the organisms without chitin. In both *in vitro* and *in vivo* tests, the isolate SE2 with 0.5% chitin showed a maximum biocontrol activity against *R. solani*. In both experiments, the use of chitin alone also reduced the damping off of pepper. The reduction of damping off disease was accompanied by increased the plant growth. These results show that the antagonistic activity of fluorescent pseudomonads may be stimulated by chitin resulting in significant improvements in their effectiveness against *R. solani*.