O-03. Pathogenicity and Host Range of a Potential Bioherbicide Isolate YK 101, Causing White Root Rot on White Clover (*Trifoliorum repens*). Yeon Kyu Hong[1], Jae Min Cho[1], Dong Bum Shin[1] and Jae Youl, Uhm[2]. [1]National Yeongnam Agricultural Experiment Station, RDA, Milyang 627-130, Korea. [2]Department of Agricultural Biology, College of Agriculture, Kyungpook National University, Taegu 702-701, Korea.

White root rot of whiteclover (*Trifoliorum repens*), caused by isolate YK 101, is first reported in Korea. Typical symptom on root having watersoaked brown rot were formed, resulting in complete blight of the top plant parts. The fungus grew well at 20-28 ℃ and produced sclerotia at 10 to 15 days after culture on PDA. Sclerotia were brown to dark brown in color and 1-2㎜ in length. When whiteclover plants were inoculated with mycelial suspension (10^5 cfu/㎖) of isolate YK 101, the plant shoots were killed within 4-6 days and the roots were completely blighted within 10- 15 days in the field. The weeding efficacy of the fungus was maintained to next year, leading to a prominent reduction of the reshooting. The fungus was specifically parasite to whiteclover, but not to 5 lawn species under green house test. Therefore, we conclude that the fungus may have a potential as a biological control agent of whiteclover in lawn ground.

O-04. Isolation of Apicidins from *Fusarium* sp. KCTC 16677 and Their Biological Activities. Kyoung-Rim Lee[1], Gye-Won Kim[2] and Yin-Won Lee[1]. [1]Division of Applied Biology and Chemistry and Research Center for New Bio-Materials in Agriculture, College of Agriculture and Life Sciences, Seoul National University, Suwon, Korea and [2]Research Laboratories, Dong-A Pharmaceutical Co., Ltd., 47-5 Sanggal-Ri, Kiheung-Up, Yongin-Gun, Kyunggi-Do, 449-900, Korea.

FS-2, a derivative of apicidin, was isolated from the wheat cultures of *Fusarium* sp. KCTC 16677. Its structure was determined mainly by NMR analyses as cyclo-[pipecolinylisoleucyl -(N-methoxytryptophan)-(2-amino-8-oxo-3-hydroxydecanoyl)]. At concentration of 200 ㎍, apicidin caused inhibition on the growth of shoots and roots in tested seedlings of corn and soybean to 74-94%. FS-2 toxin showed relatively weak phytotoxicity compared with that of apicidin. In the duckweed bioassay, apicidin caused the leakage of electrolyte and reduced content of chlorophyll. Apicidin exhibit a weak cytotoxicity against human and mouse tumor cell line such as P388, K562, and MOF-7 with ID_{50} values ranged from 2.1 to 25.3 ㎍/㎖. In acute toxicity test of apicidin, it caused toxic signs in intraperitoneally administered mice with LD_{50} values of 327.7 ㎎/㎏. Apicidin produced significant prolongation of survival time of mice implanted with P388 leukemia.

O-05. Molecular Cloning and Expression of Novel Salicylic Acid-inducible Pepper Genes Using mRNA Differential Display. Sang Jik Lee[1,2], Doil Choi[2], Seok Hyeon Nahm[1], Sun Hyung Lim[1], Kyung-Hee Paek[3] and Byung-Dong Kim[1]. [1]Department of Horticulture, Seoul National University, Suwon, [2]Plant Protectants R.U., KRIBB, Taejeon, [3]Graduate School of Biotechnology, Korea University, Seoul.

Differential gene expression during response to salicylic acid (SA) treatment was characterized by using mRNA differential display in a pepper plant (*Capsicum annuum*). Two cDNA fragments (CaSIG4 and CaSIG19) were identified by this technique and cloned for further analysis. Database searches revealed that the deduced CaSIG4 and CaSIG19 gene products share significant sequence similarity with a family of proteins which catalyze an ATP + CoA-dependent ligation step and a NACS (NAM, ATAF1-2, CUC2 and SENU5) protein family, respectively. RNA gel blot analysis showed that the CaSIG4 transcripts were induced immediately-early within 0.5 h of SA treatment and the CaSIG19 mRNA accumulated at detectable levels after 4 h of SA induction. Genomic DNA Southern blot analysis revealed that the CaSIG4 and CaSIG19 genes are likely to be a small gene family.