D-37 Isolation, structure elucidation and antifungal activity of phenylacetic acid produced by *micromonospora aurantica* strain JK-1. H. J. Kim, B. K. Hwang. Laboratory of Molecular Plant Pathology, College of Life and Environmental Sciences, Korea University, Anam-dong, Sungbuk-ku, Seoul 136-713, Korea

The actinomycete strain JK-1 was isolated from Jung-bal Mountain in Ko-yang, Korea. The strain JK-1 showed strong inhibitory activity against some plant pathogenic fungi and oomycetes, such as *Magnaporthe grisea, Colletotrichum orbiculare, Fusarium oxysporum, Rhizoctonia solani, Alternaria mali* and *Phytophthora capsici.* The strain JK-1 produced spores singly borne on sporophores and the spores were spherical and 0.9-1.2 m in diameter. The cell wall of the strain JK-1 contained meso-diaminopimelic acid. The actinomycete strain JK-1 was identified as the genus Micromonosporabased on the morphological, physiological, biochemical and chemotaxonomic characteristics. From the 16S rDNA analysis, the strain JK-1 was assigned to *Micromonospora aurantiaca.* The antibiotic MA-1 was purified from the culture broth of *M. aurantiaca* JK-1 using various purification procedures, such asDiaion HP20 chromatography, C18 flash column chromatography, silica gel flash column chromatography and Sephadex LH-20 column chromatography. 1H-, 13C-NMR and EI mass spectral analysis of the antibiotic MA-1 revealed that the antibiotic MA-1 is identical to phenylacetic acid. Phenylacetic acid showed in vitro inhibitory effects against fungal, oomycete pathogens *Alternaria mali, Botrytis cinerea, Magnaporthe grisea, Phytophthora capsici* and yeast *Saccharomyces cerevisiae* at less than 100 g ml^{-1}. In addition, phenylacetic acid completly inhibited the growth of *Sclerotinia sclerotiorum, Bacillus subtilis, Candida albicans, Xanthomonas campestris* pv. *vesicatoria* at less than 500 g ml^{-1}. Mycelial growth of *M. grisea* and *C. orbiculare* was greatly inhibited on the TLC plates spotted with phenylacetic acid. Phenylacetic acid strongly inhibited conidial germination and hyphal growth of *M. grisea* and *C. orbiculare.* Phenylacetic acid showed significantly high levels of inhibitory effect against rice blast and cucumber anthracnose diseases at 250 mg ml^{-1}. The control efficacies of phenylacetic acid against the two diseases were similar to those of commercial compounds tricyclazole, iprobenfos and chlorothalonil in the greenhouse.