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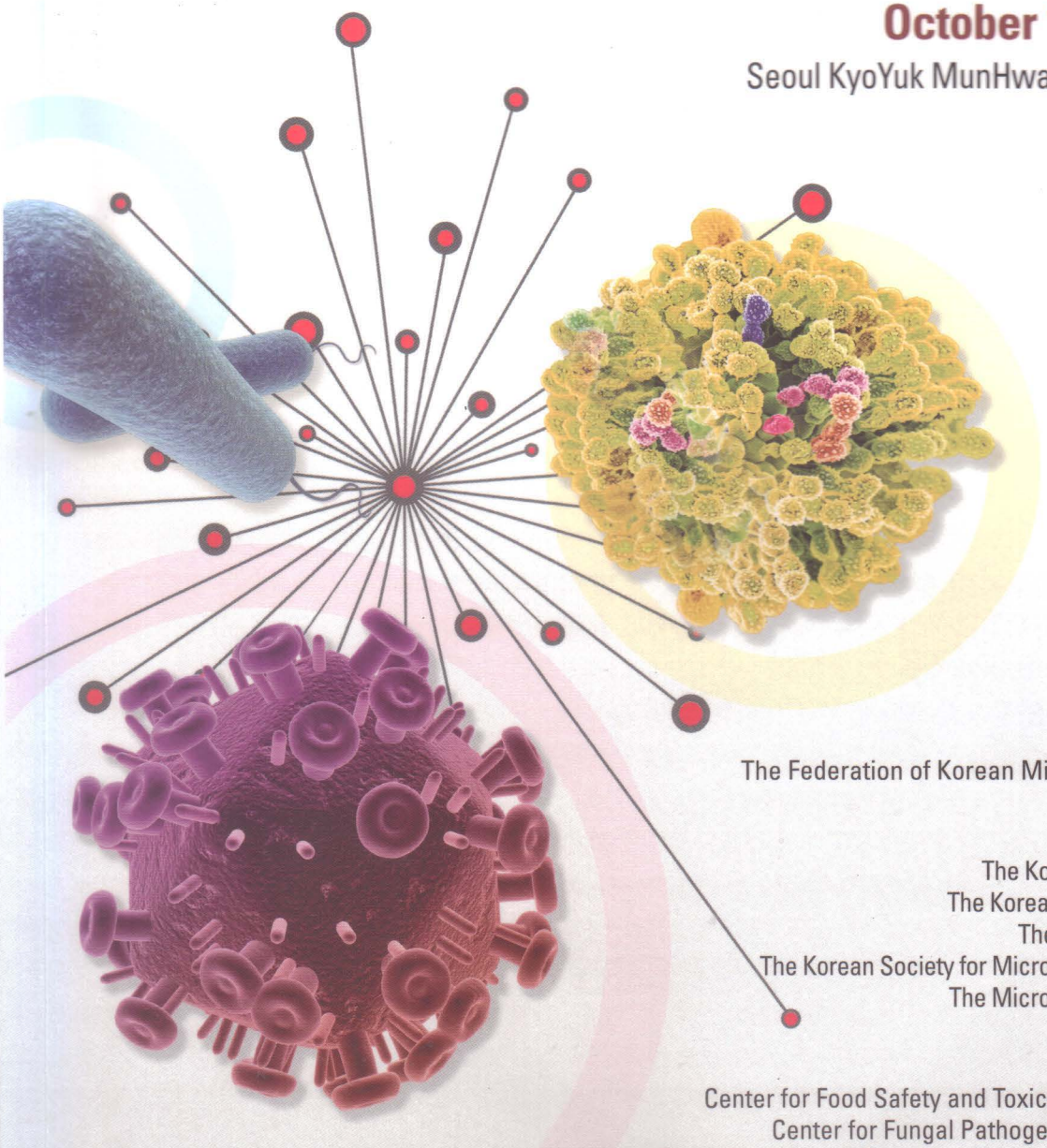

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B069

First Report of *Oidium* Anamorph of *Erysiphe platani* on Sycamore (*Platanus occidentalis*) in Korea

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In early July 2012, a powdery mildew was first observed on sycamore (*Platanus occidentalis* L.) at roadside trees in campus of Chonnam National Univ., Gwangju, Korea. Additional surveys showed the powdery mildew was widespread in southern areas of Korea including Buan and Jeonju. Major symptoms were characterised by white superficial mycelia, sometimes grey or brownish leaf surfaces due to mycoparasite (tentatively identified as an *Ampelomyces* sp.) infection, chlorosis, and severe leaf distortion followed by defoliation. The mycelial masses were primarily developed on adaxial leaf side. Conidiophores of the fungus were produced singly, straight, unbranched and much longer than other powdery mildew pathogens on herbacious plants. The length ranged 35.2-315.2 (av. 170.4) μm long. Conidia were ellipsoid or doliiform, and the size was 34.9-47.4 (av. 38.2) μm in length x 16.5-26.8 (av. 23.9) μm in width. Fibrosin bodies were not found. Chasmothecia were not found in July to August. From extracted genomic DNA, the rDNA was amplified with ITS1 and LR5F primer set. The rDNA ITS sequence analysis revealed that the causal fungus completely matched *E. platani* retrieved from GenBank with 99.0-99.8% sequence identity values. Based on the recent outbreak and occurrence distribution of the fungus, it suggests that this fungus is now widely spreading in East Asia including China, Japan and Korea, causing severe effect on growth. Co-occurrence of a mycoparasite, *Ampelomyces* sp. with the powdery mildew may represent an option for controlling epidemics of *E. platani*. To our knowledge, this is the first report of *Oidium* anamorph of *E. platani* causing powdery mildew on sycamore (*P. occidentalis*) in Korea.

Keywords : *Platanus occidentalis, Erysiphe platani*

B070

First Report of Powdery Mildew on Spanish Needles (*Bidens bipinnata*) Caused by *Podosphaera fusca*

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July to October 2011, signs and symptoms of a powdery mildew disease were observed on Spanish needles on the campus of Chonnam National University, Gwangju, Korea. Initial symptoms appeared in July and included generally white superficial mycelium on leaf and stem. Abundant necrotic dark brown spots on upper leaves were observed. Conidia were formed singly, primary conidia were ellipsoid with apex rounded and base truncate. The size was 25.4-33.2 (av. 27.3) μm in length x 10.2-12.2 (av. 11.3) μm in width. Conidiophores were erect, 60.1-101.3 (av. 98.3) μm in length x 6.2-9.2 (av. 7.3) μm. Chasmothecia of EML-BBPW1 were present more commonly on the adaxial surface of leaves. Chasmothecia were (blackish) brown to yellow without appendages. The size of chasmothecia ranged from 51.2-71.1 (av. 66.8) μm in diameter. Conidial size was 25.4-33.2 (av. 27.3) μm in length x 10.2-12.2 (av. 11.3) μm in width. Based on the morphology and ITS rDNA sequence analysis, the fungus was identified as a *Podosphsera* species, *P. xanthii*. rDNA ITS homology of the fungus (EML-BBPW1) represented 99.6% and 99.2% identity values with *P. xanthii* (DQ205330) and *P. fusca* (AB525915), respectively. The rDNA ITS and 28S sequence analysis revealed that the causal fungus matched *P. fusca*, forming a *fusca* (= *xanthii*) group. So far, 5 records regarding *P. fusca* have been found in genus *Bidens* plant. To our knowledge, this is the first report of powdery mildew caused by *P. fusca* on Spanish needles in Korea.

Keywords : Spanish needles, *Podosphaera xanthii*

B071

Diversity of Culturable Bacteria Degrading Antarctic and Arctic Soil Humic Acids

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Soil humic substances (HS), composed mainly of humic acids (HA), are widely distributed in cold natural environments and are known as an important fraction of soil organic carbon (SOC). Although bacteria dominate the soil environment, their ability to degrade and/or partially biotransform the stable HS has not been reported well. To study the diversity of bacterial degraders of HS in polar area, a total of 99 bacterial strains were isolated on Humic Acid Vitamin Agar from various soil samples: 45 strains from 66 sites in Nome, Alaska (August, 2011) and 54 strains around the King Sejong Station, Barton Peninsula, Antarctica (January, 2012). They were identified based on 16S rRNA sequence similarity using EzTaxon program, and then grouped as follows: Phylum *Firmicutes* (82.5%), Class *r-Proteobacteria* (14.7%), and miscellaneous group (2.8%) from Arctic Alaska; *r-Proteobacteria* (83.3%) and miscellaneous group (16.7%) from Antarctic King Sejong Station. For a detailed analysis, they were affiliated with *Pseudomonas* (15 strains), *Paenibacillus* (27 strains), and the other (3 strains) from Arctic samples and *Pseudomonas* (43 strains) and the other (11 strains) from Antarctic ones. Since the HA-degraders are believed to play an important role in the cycle of SOC, as the first step, we are studying the HA-degradation pathway(s) by polar bacteria.

Keywords : Humic acids, Cold-adapted, Soil microorganisms, Biodegradation

B072

The Survey of Fungal Flora in Mt.Oh-seo, Chungcheongnam Province

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Fungal flora of Mt. Oh-seo in Cheongna-myeon, Boryeong-si, Chungcheongnam-do, Korea was investigated. A total of 108 specimens was collected and identified based on their morphological characters. Few mushrooms were observed in this spring due to a long dry period. Only dry specimens belonging to Polyporaceae, Hymenochaetaceae, Corticiaceae, and Stereaceae were found. The dominant species were *Antrodia albida*, *Daedaleopsis styracina*, *Junghuhnia nitida*, *Phanerochaete sordida*, and *Stereum peculiare*. Diverse fungi were observed after the rainy season. *Amanita virosa*, *Cyptotrama asprata*, *Lycoperdon perlatum*, *Leucocoprinus fragilissimus*, *Marasmius siccus*, and *Russula* spp. have been frequently observed from July to August. Despite the short period of investigation, the seasonal difference of fungal flora was clear.

Keywords : Fungal flora, Mt.Oh-seo, Polyporaceae, *Antrodia albida*, *Russula*