P77

Antimicrobial Activity and Minimal Inhibitory Concentration(MIC) of Compounds from *Schizandra chinensis* against bacteria

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The purpose of the present study was to determine the antimicrobial activity of eight compounds from *Schizandra chinensis* on Gram-positive bacteria (4 species; *Bacillus cereus, Clavibacter michiganensis, Micrococcus luteus* and *Staphylococcus aureus*), Gram-negative bacteria (8 species; *Acinebacter calcoacetius, Citrobacter freundii, Escherichia coli, Pseudomonas aeruginosa, Proteus mirabillis, Proteus vulgaris, Shigella sonnei,* and *Salmonella typhimurium*) and *Candida albicans.* Compounds were isolated from *Schizandra chinensis* and identified as vanillic acid, gallic acid, 3,4-dihydroxy benzoic acid, Quinic acid, 4-Methyoxy benzoic aicd, Sorbic aicd, Syringic acid and Benzoic acid. Most of compounds except Quinic acid and 4-Methyoxy benzoic aicd showed antibacterial activity against all bacteria. Especially, 3,4-dihydroxy benzoic acid, vanillic acid and benzoic acid were found to exhibit a high antimicrobial activity against *Micrococcus luteus* and *Clavibacter michiganensis* with the diameter of inhibition zones ranging between 10.5 to 28.7 mm, 9.5 to 24.2 mm respectively. Minimum inhibitory concentrations (MIC) values ranged from 0.1 to 2 mg/ml against *Micrococcus luteus.* Most of compounds were more effective against Gram positive bacteria than Gram negative ones. Thus, these kind of compounds may be beneficial in the treatment of bacterial infections and for the prevention of periodontal disease.

Key words: antimicrobial activity, minimum inhibitory concentrations, *Micrococcus luteus, Clavibacter michiganensis*

P78

Benthic Macroinvertebrates of the Shinbulsan Wetland

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The distribution of benthic macroinvertebrates of Shinbulsan wetland was investigated. This study was focused on the degree of recovery of habitat by comparing the community structure of benthic macroinvertebrates of zone D to that of zone A, intact habitat. The zone D was destructed due to the construction of Eden Valley golf course and the survey was performed in zone A and zone D of Shinbulsan wetland. The seasonal survey was performed in April, July and September from 2006 to 2007. From the sampling, 2 phyla, 3 classes, 9 orders, 31 families, 69 species and 1155 individuals of benthic macroinvertebrates were collected. From zone A, 2 phyla, 3 classes, 9 orders, 23 families, 54 species and 678 individuals were identified. From zone D, 2 phyla, 3 classes, 9 orders, 23 families, 43 species and 477 individuals were identified. Species diversity and species richness were higher in zone A than in zone D. An endangered species of macroinvertebrates, *Nannophya pygmaea* was found during this investigation.

Key words: Shinbulsan wetland, Benthic Macroinvertebrates, *Nannophya pygmaea*