

- B538** Allelopathic Effects of Extracts from *Trifolium repens* L. on the Seed Germination and Seedling Growth of *Zoysia japonica* Steud  
In Taek Kim, Ji Hoon Lee\*  
Department of Biology, Changwon National University

The allelopathic effects of aqueous extracts from *Trifolium repens* L. were studied. Aqueous extracts of leaves, stems, roots and flowers of *Trifolium repens* strongly inhibited the seed germination and seedling growth of *Zoysia japonica* Steud. In general, the higher was the concentration of the extracts, the lower was the germination and the growth. The phenolic compounds extracted from *Trifolium repens* were analysed and identified using gas chromatography. As a results of the analysis 14 phenolic compounds were isolated from the leaves, stems, roots and flowers. In *Trifolium repens* the phenolic compounds such as caffeic acid, p-hydroxy benzoic acid, ferulic acid, gallic acid, p-coumaric acid, vanillic acid, trans-cinnamic acid, 2,5 dihydroxy benzoic acid, syringic acid, 2-hydroxy cinnamic acid, benzoic acid, salicylic acid, phloroglucinol, phanylacetic acid were detected. Seed germination and growth ratio of *Zoysia japonica* by 14 phenolic compounds inhibited in whole treatment. Stronger growth inhibitor were benzoic acid, salicylic acid, trans-cinnamic acid. From these results it is suggested that the phenolic compounds from *Zoysia japonica* seemed to be responsible for the allelopathic potential.

- B539** Effects of Plantation Types on Environmental Factors, Forest Regeneration and Succession  
Ji-Yeon Lee\* and Do-Soon Cho  
School of Life Sciences, The Catholic University of Korea

The effects of different plantation types on abiotic environmental factors and community dynamics were investigated in the Catholic University Experimental Forest located in Joonae-myon, Yangju-gun, Kyonggi-do (127°00'E, 37°46'N). We compared different environmental conditions and vegetation structure among the 5 stands; (1) *Larix leptolepis* plantation, (2) *Pinus rigida* plantation, (3) *Robinia pseudoacacia* plantation, (4) *Pinus koraiensis* plantation, and (5) natural forest. The number of tree and herb species appeared in the permanent quadrats was 33 and 186, respectively. We performed DCA (Detrended Correspondence Analysis) ordination to determine the similarities of tree distribution and vegetation structure in different stands. The ordination indicated that the stands could be grouped into 5 clusters. Each stand had a variable rate of regeneration and succession due to differences in the canopy structure. Oaks and ashes regenerated relatively well in most stands. Plantation species had a strong effect on the species composition and density of understory vegetation. These results could be used to achieve specific management objectives for different plantations.