

**B502** 돌콩의 지역개체군간 종자함유 galactomannan 변이유형

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한반도 남부지역에서 위도와 고도에 따른 기후적 환경조건이 서로 다른 서식지에 분포하는 돌콩(*Glycine soja*)의 8개 지역개체군을 대상으로 종자 내에 함유되어 있는 galactomannan의 조성 및 관련 변이를 추적하였다. 이를 위하여, 지역별로 채취한 종자를 재료로 TLC method를 이용한 개체군별 mannose와 galactose의 정량분석을 실시하였다. 분석결과, 각 지역별 종자 함유 mannose와 galactose의 함량은 지역에 따라 다양한 수치를 보였고, 환경적응과 관련한 생태지표로서의 mannose/galactose 함량비는 최저 0.87에서 최고 2.84에 이르는 폭넓은 수치를 나타내었다. 이러한 함량비는 대체로 중북부형, 중남부 내륙형, 그리고 해안형의 3개 유형으로 구분되었으며, 중남부 내륙형에서 비교적 높은 수치를 보였고, 중북부형에서 상대적으로 낮은 수치를 보였다.

**B503** Regional variations of Cellular Slime Molds referred to ribosomal DNA

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The intertranscribed spacer regions including the 5.8S ribosomal DNA of 3 species of Cellular Slime Molds from Korea, Japan and America were sequenced and analyzed. All five strains of *D. giganteum* were isolated from the forest soils in Korea. Among 14 strains of *D. purpureum* and 13 strains of *P. violaceum* analyzed, each two strains were obtained from ATCC and the others were isolated from the forest soils in Korea. The sequences of 5.8S ribosomal DNA were conserved among the strains of the same species, but unexpectedly highly variable among species. A high level of genetic diversity was found which was best resolved at the genus/species level as well

as the family level by sequence data from the ITS 1 and ITS 2 regions. According to the sequence alignments by CLUSTAL X and the phylogeographic analyses by PAUP, 13 strains of *P. violaceum* were divided into three groups which were compared to the morphological characteristics. Among 14 strains of *D. purpureum*, genetic variations were not related to two morphological types, the temperate and subtropical type

**B504** Monitoring of Pine Pollen Viability in Several Polluted Areas of KoreaTae Hee Kim<sup>1</sup>, Se Jeung Hong and Eun Ju Lee

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The aim of this study was designed to examine the effects of environmental conditions on pollen viability in several sites in Korea. In addition, a comparison with environmental parameters and pollen characters are presented in a descriptive way. Pine pollen samples characters were collected from 60 trees of *Pinus densiflora* in Korea under varying degrees of air pollution were compared. The percentage of pollen germination rate and pollen tube length varied considerably among sites. Both of these characteristics were highest in pollen samples from a relatively unpolluted locality (Kwanglung). Viability of pollen samples from a moderately polluted locality was slightly reduced by 20% and the samples from highly polluted habitats (Yeoucun Industrial complex Areas) germination was strongly reduced by 45% respectively. From this study, we could conclude that a positive correlation was observed between in vitro pine pollen and environmental conditions.

**B505** Effects of Leachate from Incheon Waste Landfill on Several Herbivorous Plants Growth

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This study was conducted to investigate the effects of waste landfill leachate containing heavy metals as well as the macro-, micronutrients on plant growth and provide plans about the re-cycling of the leachate. Not only the vegetation structure and seedbanks but also the growth chamber experiment was performed to inquire the effects of leachate on seed germination about the several herbivorous plants. There was high level of nutrients in leachate, especially the contents of Na, Cl<sup>-</sup> and NH<sub>4</sub><sup>+</sup> were elevated. The percentage of seed germination was decreased as the leachate concentrations were increased, but there were no difference statistically between the leachate value at 12.5% and the control. The results of the study with diluted leachate values at 12.5% showed, that there was a delayed seed germination in early phases rather than inhibition. Root growth was affected more negatively than shoot growth.

**B506 Responses of *Ageratina altissima* (white snakeroot) to variation in light availability**

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*Ageratina altissima* (white snakeroot), an exotic perennial in Korea, is invading into disturbed forest floor and occupying most of the understory vegetation. The purpose of this study was to provide a hypothesis on the invasion success of *A. altissima* in the forest interior with a viewpoint of growth and biomass allocation responses to variation in light availability. Seeds of *A. altissima* were collected from the forest interior of which the relative light intensities were 15.1% photosynthetically active radiation (*PAR*). Germinated seedlings were grown at 31%, 16.6%, 3.8%,

and 0.6% *PAR* for 30 days. Overall, low light availability resulted in plants with small number and total area of leaves, longer internodes, reduced stem height, and smaller dry weight biomass. Also, relative growth rate (*RGR*), root-shoot ratio (*RSR*), and root mass ratio (*RMR*) were decreased, while leaf area ratio (*LAR*) and specific leaf area (*SLA*) were increased. Our results indicate that *A. altissima* may be capable of capturing and using light resources for biomass production and responding plastically to changes in light environment through morphological adjustments.

**B507 Soil Property of *Phytolacca americana* and Its Allelochemicals Effect of GuPOX Activity and Morphology on *Cassia mimosoides***

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The phenolic compound effects of aqueous extract from *Phytolacca americana* were studied. The soil that there was not being *P. americana* was a lot of nutrients and heavy metal ions compared with those of being *P. americana*. Also the accumulation of heavy metal in leaves was significantly higher than those of other region. Ten phenolic compounds were identified from *P. americana* extract by HPLC: benzoic acid, gallic acid, chlorogenic acid, gentisic acid,  $\rho$ -hydroxy benzoic acid, caffeic acid, *m*-hydroxybenzoic acid,  $\rho$ -coumaric acid, cinnamic acid and ferulic acid. Benzoic acid among them was the most amount of phenolic compound. The root length of *Cassia mimosoides* var. *nomame* was more affected than shoot length by the phenolic compound of *P. americana* soil. The activity of GuPOX on whole plant, root and shoot of *C. mimosoides* was increased in proportion to the concentration of *P. americana* extract. When *C. mimosoides* was treated with 30% concentration of *P. americana* extract, the GuPOX activity of root region was over 3 times higher than