

informative nucleotide sites, which had a consistency index of 0.80 and a retention index of 0.75 with 242 tree length. And bootstrap and Jackknife analyses was performed to confirm its phylogenetic strength. ITS sequence data suggested that Australian species were diverged from SE Asian species. The bootstrap analysis showed strong monophyletic relationships among genus *Indigofera* comparing with the most related genera.

A209

A Genealogical Pattern of *Ginkgo biloba* L. on the Base of RAPD Analysis in Korea

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Ginkgo biloba L. has been cultivated for their conservative values and economic importances. This study was intended to reveal their regional and genealogical relationships, and to find genetic markers by using Random Amplified Polymorphic DNA(RAPD). We have collected seventy six plants of *Ginkgo* older than at least 200 years. Among them, forty four plants were compared for their genetic characteristics. On the base of the RAPD analysis, we expect to trace the genealogy of *Ginkgo* which has been planted during last one thousand three hundred years in Korea. Although we have not found out any specific marker yet, the phenogram of RAPD pattern of Korean *Ginkgo* was constructed by UPGMA and neighbour-joining methods.

A210

Cuticle Micromorphology of Leaves on the Genus *Fagus* L. (Fagaceae)

and Its Taxanomic Implications

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참나무과에 속하는 너도밤나무속(*Fagus* L.)은 북반구 온대지방에 분포하고, 전세계적으로 10여종이 알려져 있다. Shen, C. F.(1992)는 너도밤나무속을 나무의 수형과 수피, 각두와 포린의 형태 등을 가지고 2개의 아속과 4개의 절로 분류하였다. 너도밤나무속의 cuticle층의 미세구조에 대해서는 현생종과 화석 식물에 대한 비교 연구를 위해 다수 행하여 졌다 (Jones, 1984, 1986; Smiley C. J. & Huggins L. M. 1981). 그러나 너도밤나무속에 대한 Cuticle의 미세구조의 분류학적 유용성에 대해서는 언급된바 없다. 따라서 본 연구는 너도밤나무속에 속하는 8종(*F. engleriana*, *F. japonica*, *F. sylvatica*, *F. longipetiolata*, *F. lucida*, *F. hayatae*, *F. crenata*, *F. grandifolia*)의 잎의 큐티클 형질을 조사하였다. 그 결과 잎의 큐티클 층의 미세구조 중 표피세포의 형태, 왁스(wax)층의 발달유무, 기공의 형태, 기공의 크기, 기공 주위의 돌기물의 유무, 부세포의 형태, 공변세포의 돌출여부, stomata rim의 발달여부, areole line상의 모공의 유무 등이 뚜렷한 차이를 보였다. *Fagus* 아속(Subgenus *Fagus*)은 areole line위에 모공이 존재하고, 단모가 있으며, stomata rim이 뚜렷이 발달하였다. *Engleriana*아속(Subgenus *Engleriana* Camp ex Shen)은 표피세포가 다각형이며, 단모가 있으며, 왁스층이 잘 발달하였으며, 기공 주위에 둥근 돌기가 있고, 뚜렷한 부세포가 없으며, 기공의 형태는 원형이며, areole line 상의 모공은 없다. 이러한 잎의 큐티클 미세구조는 너도밤나무속내의 분류군의 분류학적 해석에 매우 유용한 것으로 밝혀졌다.

A211

Gynodioecy in *Lycopus lucidus* Turcz. (Lamiaceae) in Korea: A Confirmation for the Gender Dimorphism Based Mainly on Floral Morphology

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Sexual system of *Lycopus lucidus* Turcz., a perennial herb, has never been questioned seriously before. The present study is focusing on the careful investigation of *L. lucidus* flowers collected from several populations in Korea to clarify their precise sexual system. The results are confirmed that *L. lucidus* is clearly gynodioecious plant, which its population comprise plants with hermaphrodite flowers and plant whose flowers are functionally female, the male organs being reduced in size and sterile. In *L. lucidus*, all investigated floral characters (e.g., petal, sepal, stamen, style, stigma length) are significantly different between two morphs. Hermaphroditic plants are larger than those of female ones in petal length ($P < 0.0001$), sepal length ($P < 0.002$) and stamen length ($P < 0.0001$). On the contrary, female plants larger in style length ($P < 0.45$) and stigma length ($P < 0.0001$) than those of hermaphrodite. Additionally, some of micromorphological characters (e.g., petal and sepal cell structure, leaf surface and seed structure, etc.) of two morphs were examined and described by means of the scanning electron microscopy (SEM). However, there are no significantly differences between female and hermaphrodite from these micromorphological characters. - (Supported by a grant KRF 2000-041-D00254)

A212

**Gender Dimorphism in the Korean
Endemic Taxon, *Silene takesimensis*
Uyeki et Sakata (Caryophyllaceae)**

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Silene takesimensis Uyeki et Sakata is the Korean endemic taxon, which is occurred

quite restricted area, Ullung Island. A gender dimorphism ('gynodioecy') is clearly confirmed on the basis of floral structures of *S. takesimensis* in the present study. Gynodioecious populations of this taxon in Ullung Island consist of two basic floral types: hermaphroditic and female fertile flowers. Several floral characters of these two morphs were investigated in terms of sepal, petal, style and stamen length, etc. It is shown that there is some differences of floral stages between two morphs. All investigated floral characters of the hermaphroditic flowers are significantly larger than those of female flowers of the same species ($P < 0.0001$). Female flowers with rudimentary anthers do not make pollen grains. Pollen grains of the hermaphrodites are monad, medium in size; aperture is pantopolyporate; exine is tectate-punctate with scattered microechini. Additionally, the presumed reproductive biology of *S. takesimensis* is also briefly discussed. - (Supported by a grant KOSEF 981-0513-068-2)

A213

**Interfamilial Relationships of Korean
Chordariales (Phaeophyceae)
Inferred from Nuclear SSU rDNA
Sequences**

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Chordariales was established by Setchell et Gardner (1925) with the type family Chordariaceae, which includes *Chordaria* as the type genus, typified by *Chordaria flagelliformis* (O.F. Mueller) C. Agardh. In Korea, 7 families, Acrotrichaceae, Chordariaceae, Elachistaceae, Ishigeaceae, Leathesiaceae, Spermatochnaceae, and Myrionemataceae occur in Chordariales (Lee and Kang 1986). We carried out