

서 소포자가 연속형 세포질분열을 나타냈고 배주는 bitegmic, tenuinucellate, 종피는 exotestal type 등의 특징을 갖는 것으로 밝혀졌으며, 그외의 생식기관 형태는 미나리아재비과에서 공유되는 형질들이었다. 지금까지 가장 근연식물군이라고 언급되어온 금매화속과 너도바람꽃속의 생식기관 해부형태와 비교해본 결과, 가장 뚜렷한 차이는 종피형태가 금매화속은 endotestal type인데 반하여 모데미풀은 exotestal type 이었으며, 너도바람꽃속은 unitegmic을 가지고 있어 금매화속이나 모데미풀속의 bitegmic 과는 뚜렷한 차이를 나타냈다. 또한, 소포자 세포질분열과정에서 모데미풀의 근연식물군이 모두 동시형세포질분열패턴을 보이는 반면, 모데미풀은 연속형 세포질분열 패턴을 나타냈다. 이러한 뚜렷한 차이는 모데미풀이 한국특산속으로 처리되는 것이 타당하다는 것을 지지하는 것으로 사료되며 금후 분자계통학 수준에서의 연구를 통하여 이를 입증하려고 한다.

#### **A215** Morphological variation of the *Dryopteris varia* complex in Korea

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The *Dryopteris varia* complex in Korea includes six controversial species; *D. varia*, *D. pacifica*, *D. bissetiana*, *D. saxifraga*, *D. saxifragi-varia*, and *D. sacrosancta*. To elucidate the taxonomic identities of the complex in Korea, we examined the reproduction mode and the patterns of morphological variation using landmark analysis and principal components analysis. The results revealed the presence of five distinct entities in the complex; (1) *D. varia*, (2) *D. pacifica*, (3) *D. sacrosancta*, (4) a group including *D. bissetiana*, *D. saxifraga* and *D. saxifragi-varia*, and (5) Suak population. Individuals of *D. bissetiana*, *D. saxifraga* and *D. saxifragi-varia* are further distinguished by the scale shape, and the latter was assumed to be derived from hybridization between the former two.

#### **A216** Morphometric and RAPD analyses of tribe Forsythieae (Oleaceae)

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Although taxonomists have suggested many results on taxonomic status and relationships of *Abeliophyllum* Nakai (Forsythieae, Oleaceae; one of the Korean monotypic species) and its related genera, there is no confidential agreement yet. To define the taxonomic problems of Forsythieae and discuss the phylogenetic relationships, we performed morphometric and RAPDs analyses on 26 OTUs of tribe Forsythieae (*Forsythia* and *Abeliophyllum*), *Fontanesia* and *Jasminum*. Based on the results of the principle component analysis (PCA) from 33 morphological characters, there were distinct limitations among the treated genera. Also, UPGMA phenogram and Neighbor-Joining tree were produced from the results of RAPDs analysis with 15 oligo primers. The genetic relationships between *Abeliophyllum* and *Forsythia* was higher than that of *Fontanesia*. N-J tree from the RAPDs results suggested that *Abeliophyllum* was confirmed as the closest sister group of *Forsythia*.

#### **A217** Pollen morphology of the genus *Lycopus* L. (Mentheae-Lamiaceae)

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The pollen morphology of 15 species in *Lycopus* L. was investigated by light, scanning electron and transmission electron microscopy. Pollen grains of *Lycopus* are monad, usually medium, rarely small in size (P=22.5-38.5 $\mu$ m, E=20.0-37.5 $\mu$ m) and hexacolpate. The pollen grains vary from oblate to prolate in shape even within the same species (P/E=0.75-1.44). Exine is bi-reticulate with unbranched columellae.

The value of pollen morphological characters for taxonomic purpose is also briefly discussed.- (Supported by a grant KRF 2000-041-D00254)

#### **A218** Pollen morphology of the Thymelaeaceae in Korea

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The pollen grains of four Korean genera (*Daphne* L., *Edgeworthia* Meisn., *Wikstroemia* Endl. and *Stellera* L.) in the family Thymelaeaceae were investigated with light and scanning electron microscopy. All studied taxa have monad, spheroidal, pantoporate grains with a typical crontonoid tectum comprising rings of more or less trihedral sexine units. Each triangular subunit is topped by a single microspinule, and the surface pattern is psilate. In *Daphne*, the basic subunit is triangular in shape and forms a separated triangular array, while in the remnant three genera it is continuously formed. The size of grains (11.3-60.0 $\mu$ m) are varied from small (*Stellera*) through medium (*Daphne*, *Wikstroemia*) to large (in *Edgeworthia*). The sexine is usually two to four times thicker than that of nexine. Taxonomic implication of the pollen data for the Korean Thymelaeaceae is also shortly discussed. - (Supported by a grant from 'Flora of Korea Project/21C Frontier Program 2001')

#### **A219** Discordance of chloroplast and nuclear ribosomal DNA data in *Osmorhiza* (Apiaceae);

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Phylogenetic studies were conducted to evaluate interspecific relationships in

*Osmorhiza* (Apiaceae: Apioideae) using sequences of the ITS regions of nuclear ribosomal DNA, and the chloroplast *ndhF* gene and two noncoding regions (*trnL* intron, and *trnL*[UAA] 3' exon - *trnF*[GAA] intergenic spacer). All data sets suggest the monophyly of the New World taxa, and showed that *Osmorhiza aristata* from Asia is relatively divergent from other members of the genus, even though it is morphologically similar to the eastern North American *O. claytonii* and *O. longistylis*. The ITS and chloroplast DNA trees differ in the relationships among the New World taxa, especially the phylogenetic position of *O. occidentalis*, *O. glabrata*, and *O. depauperata*. Lack of congruence between the two data sets may be a result of hybridization or introgression. Although there is high discordance between nrITS and two chloroplast DNA data sets, the latter two show similar topologies.

#### **A220** ITS 염기서열에 근거한 홍조 풀가사리속(*Gloiopeltis* 식물)의 계통학적 유연관계

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홍조 풀가사리속 식물은 북태평양 연안의 중간대 중, 상부의 암반에 생육하며, 현재 참풀가사리(*G. tenax*), 불등풀가사리(*G. furcata*) 그리고 애기풀가사리(*G. complatana*)의 3종이 보고되어 있다. 특히 불등풀가사리는 체형에 따라 typical *G. furcata* type, *G. furcata* f. *intricata* type 그리고 *G. furcata* f. *coliformis* type으로 구분되며 이들은 각각 다른 생육지 특성과 생물계절을 보여주고 있다. 본 연구에서는 풀가사리속 3종의 18 지역 집단 (또는 개체군)을 대상으로 핵rDNA의 ITS 염기서열을 분석하여 이들 분류군간, 특히 불등풀가사리의 세가지 형태 및 생태 유형에 주목하여 각 분류군간의 분자계통학적 유연관계를 파악하고자 하였다. ITS1과 ITS2 염기서열에 대한 근린결합분석과 최대절약분석 결과 대상 분류군은 강하게 지지되는 네개의 계통군- 애기풀가사리군, 남해안에 생육하는 참풀가사리와 불등풀가사리의 복합군, 동