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C-banding patterns and Chromosomal Localization in some *Lycoris* Species

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The interspecific relationships of *Lycoris flavescens*, *L. chinensis*, and *L. sanguinea* var. *koreana* were investigated with the Giemsa C-banding patterns. These three taxa had their own characteristic bands, and most of the bands on the somatic metaphase chromosomes were mainly located at the terminal region. The proportion of heterochromatic amount per total chromosomal length was 3.4%, 3.5% and 1.8% respectively. Satellite chromosomes appeared two in *L. flavescens*, one in *L. sanguinea* var. *koreana* and absent in *L. chinensis*. It was showed three C-banded signals from twenty-two acrocentric chromosomes of *L. sanguinea* var. *koreana*. The C-banding markers were located 1, 5, 7 according the chromosome size. *L. flavescens* with 2n=19 showed six signals, two on acrocentrics and four on telocentrics respectively. Eight signals in *L. chinensis* with 2n=16 were associated with the distal end of telocentric chromosomes only. Image analysis and the karyotyping analysis were carried by the VIDEOTEST 2.0. Also this finding supports that *L. flavescens* is hybrid between *L. chinensis* and *L. sanguinea* var. *koreana*.

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Basal lineages of angiosperms based on *atpB*, *rbcL*, and 18S rDNA sequences with the emphasis on compartmentalization analysis

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Relationships among basal angiosperm groups were investigated in the context of a larger phylogenetic analysis of the angiosperms. Analysis based on multiple genes reconstructed a grade of monosulcate at the base of the angiosperm tree. Amborellaceae, Nymphaeaceae, and a clade of Austrobaileyaceae, Illiciaceae, and Schisandraceae are successive sisters to all other angiosperms. The remaining monosulcates, except *Ceratophyllum*, which is the sister to the eudicots, form a weakly-supported clade that comprises six strongly-supported subclades: Chloranthaceae, Piperales, monocots, Laurales, Winteraceae/Canellaceae, and Magnoliales. Relationships among these six clades are not strongly supported. To compensate for homoplasy at these deep levels, and for getting resolution of these subclades, we performed a compartmentalized analysis. In the intensive analysis of compartmentalized data set, Magnoliales and Piperales are placed with Winteraceae/Canellaceae, and Laurales, respectively. Monocots are located at the base of these two clades. Bootstrap values of the clade of Eudicots/*Ceratophyllum* and most of the clades in each compartment are increased. Constraint analysis was also performed to get better resolutions in each compartment and to compare with compartmentalized data.