

凤仙花属植物种皮微形态特征在系统分类中的应用

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Seed Coat Micromorphology Characteristics of *Impatiens* L. and Its Systematic Significance

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摘要 凤仙花属 (*Impatiens* L.) 植物花部形态变异极为复杂, 分类十分困难, 其种子微形态特征可为种间划分提供有价值的信息。利用扫描电镜对24种凤仙花属植物的种皮微形态特征进行了观察和比较。结果显示, 种皮纹饰可归入网状型(含细网状亚型、粗网状亚型、负网状亚型、龙骨状亚型和条纹状亚型5种亚型)和隆起型(含指状隆起亚型、簇状隆起亚型和鳞片状隆起亚型3种亚型)两大类; 其网眼形状、网眼深度、网脊粗细、隆起物形状、衍生物密度等方面呈现出种间多样性, 可用于类群的比较和鉴别。探讨了种皮微形态在凤仙花属内的系统分类学意义, 推测了种皮纹饰的可能演化路线, 认为网状结构为原始性状, 其余纹饰结构为衍生性状, 结合分子系统发育资料、花粉形态和叶表皮微形态特征可为属内一些种系统位置的确定提供参考依据。

关键词: 凤仙花属 种皮 微形态 系统分类

Abstract: The floral differences among *Impatiens* L. are so complicated that there are many difficulties in taxonomy of the genus. Seed coat micromorphology characteristics play an important role in providing critical information on systematics. In the present study, the seed coat micromorphology of 24 species of *Impatiens* from China were observed and compared by scanning electron microscopy (SEM). The results showed that seed coat ornamentation in this research could be ascribed into 2 types as reticulate (including fine reticulate, thick reticulate, areolate, carinate and striate subtype) and protrusive (including digitiform, clustered and squamulate subtype), in which thick reticulate subtype was described for the first time. And the variety appeared among the species such as the shape and depth of lumina, width of muri, shape of protrusions, and density of derivatives and so on, could be used to identify the species in *Impatiens*. The systematic and phylogenetic implications of seed coat micromorphology in *Impatiens* were discussed. And the possible evolutionary route of seed coat ornamentation was conjectured as well, which suggested that reticulate type was ancestral, others were derivative, and the micromorphological features of seeds could be crucial evidence to locate some species in *Impatiens* systematically in combine with pollen morphology, micromorphological characters of leaf epidermis and molecular data.

Keywords:

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