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Subfamilial Relationships within Solanaceae as Inferred from atpB-rbcL Intergenic Spacer

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Abstract : A phylogenetic analysis of family Solanaceae was conducted using sequence data from the chloroplast intergenic atpB-rbcL spacer. Sequence data was generated from 17 species representing 09 out of 14 genera of Solanaceae from Pakistan. Cladogram was constructed using maximum parsimony method and results indicate that Solanaceae is mainly divided into two subfamilies; Solanoideae and Cestroideae. Four major clades within Solanoideae represent tribes; Physaleae, Capsiceae, Datureae and Solaneae are supported by high bootstrap value and the relationships among them are not corroborating with the previous studies. The findings established that subfamily Cestroideae comprised of three genera; Cestrum, Lycium, and Nicotiana with high bootstrap support. Position of Nicotiana inferred with atpB-rbcL sequence is congruent with traditional classification, which placed the taxa in Cestroideae. In the current study Lycium unexpectedly nested with Nicotiana with 100% bootstrap support and identified as a member of tribe Nicotianeae. Expanded sampling of other genera from Pakistan could be valuable towards improving our understanding of intrafamilial relationships within Solanaceae.

Keywords : systematics, solanaceae, phylogenetics, intergenic spacer, tribes
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