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Phylogenetic Study of Chloroplast Genome of Solanaceae Species

Ali Imad Mohammad Moner

Institute of Genetic Engineering and Biotechnology for Postgraduate Studies,
University of Baghdad, Bagdad, Iraq
E-mail: ali@ige.uobaghdad.edu.iq

Abstract: Solanaceae family has many important economic species. Understanding the relationship based on the chloroplast genome for all species belong to this family can develop new cultivars with properties under market needs. 145 chloroplast genomes belong to Solanaceae family has been collected to study the phylogenetic relationship. Three main clades were found which reflects complicated evolution history with essential events during domestication history. Both Bayesian and maximum likelihood analysis agreed with the same topology tree. Group species by genus, simplified the analysis without alteration of the results. It has been identified 339 popular variants across chloroplast genomes, some of them lead to amino acid change, add, terminate, and might lose functions. Two regions were identified the first one is to select unique markers per genus and the second is for family detection.

Keywords: Solanaceae, Genome