TAXONOMY AND SYSTEMATIC STUDIES ON THE GENERA *Alpinia* Roxb. AND *Amomum* Roxb. OF THE FAMILY ZINGIBERACEAE IN SRI LANKA

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Alpinia and *Amomum* are the largest two genera that list the highest number of endemics of family Zingiberaceae in Sri Lanka. The family is recognized as one of the least studied plant groups in the country, justifying the need for the present study. Thus, as a pioneering step, having the objectives as to assess the taxonomy and phylogenetic relationships, this study addressed several taxonomic issues, evolutionary relationships and conservational status of members of *Alpinia* and *Amomum*.

The study recorded the occurrence of eight species of *Alpinia* and 11 species of *Amomum* in Sri Lanka, though, several endemic species were not found, suggesting the possible extinction of these species. Data gaps in species descriptions in the Revised Handbook to the Flora have been filled with field collections and thorough examination of one new variety of *Amomum* (*A. villosum* var. *zeylanicus nov*) is described along with a new addition of exotic *Alpinia* (*A. zerumbet*) to the country. Two major clusters within each genus were observed to separate in the multivariate statistical analysis of the morphological data. The two species of *Alpinia* with radical inflorescence (*A. fax* and *A. abundiflora*) clustered separate from the rest of the species with higher significant values suggesting the recognition of a new taxonomic group. No unique character could be isolated to aid in distinguishing species in the field, instead the study developed a new taxonomic key with easy combination of morphological characters.

Individual and combined DNA sequence data of chloroplast genome regions *trn L-F* and *trn S-fM* were used in the evolutionary relationship reconstruction. Parsimony analysis and Bayesian inference of the phylogenetic trees showed the monophyletic origin of the two genera although several monophyletic clades resolved within each genus. *Alpinia* clade split into four sub-clades and *Amomum* into two. The fruit morphology of these species is in consistence with the clades observed in the analysis. Resolution of *A. fax* and *A. abundiflra* in a different monophyletic clade confirms the suggestion of a need of a new generic name to these species brought up by recent studies.

Illumination of the urgent need for conservation of these invaluable monocot family in Sri Lanka is an important result of the present study as most endemic species do not show recent records while the destruction of the native habitats of these plants still persists.