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**Pollen morphometrics of family Magnoliaceae and Commelinid clade**

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Basal angiosperms are classified into ANITA grade and Magnoliid clade according to the APG IV (2016) classification system. Many taxonomists have considered that some traits of the Family Magnoliaceae are independently derived (synapomorphies) from remaining Magnoliids. Commelinid clade is considered paraphyletic to the other monocots and including four orders; Arecales, Poales, Commelinales and Zingiberales. Pollen characters are potentially informative in higher-level systematics for floral evolution. Various pollen morphological features such as symmetry, shape, apertural pattern and exine configuration are considered as conservative features for the taxonomic assessments of the plants. The objective of the present investigation was to determine the phylogenetic relationships of family Magnoliaceae and Commelinid clade by studying the available species in Sri Lanka using their pollen morphometrics. *Licuala grandis*, *Loxococcus rupicola*, *Fimbristylis miliacea*, *Cyperus melanospermus*, *Monochoria vaginalis*, *Commelina diffusa*, *Heliconia rostrata* and *Alpinia purpurata* were selected as plant taxa belongs to the Commelinid clade, while *Michelia champaca* and *Michelia nilagirica* were selected from the family Magnoliaceae for the present study. The mature flowers of selected species were collected during the period of April 2019 to August 2019. Healthy anthers were separated from fresh flowers/florets. Pollens were subjected to acetolysis treatment (Acetic anhydride: conc. H<sub>2</sub>SO<sub>4</sub>; 9:1 ratio) and treated pollens were stained with Safranin (5%). Stained pollens were observed under Phase Contrast Microscope (10 x 40) and microphotographs of the pollen grains were prepared. Pollen characters were analyzed using the PAST (PAleontological STatistics) software package to interpret phylogenetic relationships. Cladogram has shown close phylogenetic relationships with family Magnoliaceae and family Areaceae among the Commelinid clade. The studied species were aligned with the family Magnoliaceae and Commelinid clade of APG system IV (2016) with respect to their pollen morphometrics.

**Keywords:** APG IV system, Cladogram, Commelinids, Family Magnoliaceae, Pollen morphometrics