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Pollen Morphological Studies on Selected Species of Family Dilleniaceae in Sri Lanka**Abeyrathne U.K.G., Munasinghe M.L.A.M.S.****Department of Botany, University of Sri Jayewardenepura, Nugegoda, Sri Lanka***mayuri@sci.sjp.ac.lk***Abstract**

Dilleniaceae is an angiosperm family including 11 genera and about 500 known species with a pantropical distribution extending into Australia. In Sri Lanka, four genera and 16 species including one introduced species have been reported in the family Dilleniaceae. Most of these species are endemic or native, while *Schumacheria* is an endemic genus. Morphological characters of the pollen grains are a significant taxonomic identification tool in the systematics of higher plants. The aim of the study is to provide detailed palynological descriptions of selected pollen species and maintain pollen reference collection. Four plant species, *Dillenia retusa*, *Dillenia suffruticosa*, *Dillenia triquetra*, and *Schumacheria castaneifolia* of the family Dilleniaceae (Genus *Dillenia* and *Schumacheria*) were collected from different localities in the wet zone including Nugegoda and Baduraliya during the period from September 2022 to November 2022. The voucher specimens were authenticated using revised handbook to the flora of Ceylon and deposited in the Herbarium of the Department of Botany, University of Sri Jayewardenepura, Sri Lanka. Fresh flowers or dried flowers were taken to collect pollen. Pollen grains were acetolysed and observed under Optika microscope (BG-Italy) after mounting on a clean glass slide using glycerin jelly with Basic fuchsin. Thirty pollen grains were used to determine the pollen size for each selected species. All measurements were taken within seven days of pollen preparation using OptikalSview (3.9.0.604) software. The shape, size, and surface features of pollen grains, as well as the length and width of the pollen and apertures and Polar/Equatorial ratios, were observed. Descriptive statistical analysis was performed using Minitab 18 software for the quantitative variables related to measurements of pollen obtained with light microscope. The ranges of variation were 15-22 μm for polar axis, 16-26 μm for equatorial axis, 0.8-3.5 μm for colpus width and 5.0-12.5 μm for colpus length. The pollen grains of all the species are monad, isopolar, and radially symmetrical. Pollen grains were identified as suboblate to oblate spheroidal, small or medium-sized, tricolpate (*Dillenia spp.*) or tetra-colpate (*Schumacheria castaneifolia*), with the surface ornamentation punctate to reticulate. The longest and widest pollen grains were reported in *Dillenia suffruticosa* (22.0 \times 26.4 μm), while the smallest were observed in *Schumacheria castaneifolia* (15.2 \times 16.4 μm). Based on the length of the longest spore axis, except *D. suffruticosa* all other species are categorized into small-size pollen. According to the results, the distinction between species can be determined using palynological features such as shape, size, and aperture type.

Keywords: Pollen morphology, Dilleniaceae, Palynology, Reference collection