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Morphometry and pollen germinability of selected commercial *Dendrobium* cultivars

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Dendrobium is one of the highly demanding ornamental plant genus in Sri Lanka. However, taxonomic identification of Dendrobiums are not straightforward and it is often complicated with the introduction of large number of commercially attractive hybrids and cultivars. Therefore, morphometry was used for taxa identification in the present study. Further, plant growers produce hybrids using these modern cultivars. However, recently, it has been found that artificial pollination of modern hybrids is unsuccessful. It was hypothesized that the modern hybrids bear infertile pollens. Eight commercial *Dendrobium* cultivars (A-H) with different floral morphology were selected for the study. Sixty different floral and vegetative characters were observed and recorded. Morphological characters were subjected to cluster analysis using PAST 3.1 software package. Two *Dendrobium* cultivars (F and G) were closely related and have separated from the other taxa. *Dendrobium* cultivar B has shown a clear separation from the other studied taxa. Pollinia of *Dendrobium* flowers were deposited on the stigma of the same flower. After 72 hr, a small amount of stigmatic fluid was stained with lacto phenol cotton blue, observed under a light microscope and percentage pollen germination was calculated. Pollen viability was tested by placing crushed pollinia on a cavity slide with 1% solution of 2,3,5-triphenyltetrazolium chloride, incubating at dark for 6 hr and observing under a light microscope. The highest percentage of pollen germination was observed in *Dendrobium* cultivar D (67%) while the lowest germination was observed in cultivar A (24%). The pollen viability of the cultivars varied from 77% to 94%. Successful observations *in planta* pollen germination concludes that the modern cultivars still have the potential of using in plant breeding programs.

Keywords: *Dendrobium*, morphometry, pollen germinability

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