

Evaluation of phenetic diversity of selected orchid cultivars with ornamental value

F Farook, R N Attanayake and S P Senanayake

Department of Botany, University of Kelaniya, Kelaniya

Orchidaceae is one of the largest and most diverse families of flowering plants and includes major export ornamental crops of many tropical countries. The demand for cut flowers has drastically increased over the years. Cultivar development is a key for the success of ornamental flower industry and therefore, it is vital to identify the phenotypic diversity of the cultivars with high demand. The major problem faced by the Sri Lankan orchid growers is the lack of new orchid cultivars with high ornamental values with authorship. Therefore, the introduction of cultivars with desirable characters to meet the demand is needed. The objective of this study was to evaluate the diversity of qualitative and quantitative traits of selected orchid cultivars with ornamental value. Morphological characters (108) of vegetative and floral parts from 35 selected orchid cultivars belonging to the genera *Dendrobium* (31), *Phalaenopsis* (3) and *Cattleya* (1) were studied. Both qualitative and quantitative characters were studied and Cluster Analysis (CA) and Principal Component Analysis (PCA) were performed to infer phenetic relatedness among the cultivars using MINITAB 17 software package. Interestingly, cultivar of *Cattleya* has shared some characters such as root nature and leaf shape with *Dendrobium* cultivars. Floral diversification was clearly observed within *Dendrobium* cultivars. Sepal and petal surface colors, root thickness, plant nature, presence of pseudobulbs, length and width of floral parts, leaf length and width are the characters that influenced primarily on morphological clustering of the closely related orchid taxa. Findings of the study would pave the way to thrive in establishing cultivars with promising characters.