ASSESSMENT OF GENETIC DIVERSITY OF GENUS NYMPHOIDES

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Genus *Nymphoides* contain approximately 50 known species that vary in growth habit, inflorescence architecture, vegetative, floral and seed morphology. It is difficult to identify different species of the genus due to its high similarities in morphological characters. Capturing of diversity has great implications on conservation and utilization of the genetic resources. Currently, DNA barcoding is frequently used in assessing genetic diversity of genomes. Genetic diversity of plant species belonging to genus *Nymphoides* found in Sri Lanka, is not well studied. Therefore, this study was conducted to optimize molecular based protocols to use in DNA barcoding of the genus *Nymphoides*. Genomic DNA from leaves of the respective plant samples was isolated using a modified cetyltrimethylammonium bromide method. Chloroplast ribulose-1, 5-bisphosphate carboxylase (*rbcL*) gene specific universal barcoding primers were assayed and the size of the amplified gene region was approximately 700bp. Protocol of *rbcL* amplification was modified for future DNA sequencing. The amplified *rbcL* gene region was digested with *EcoRI* restriction enzyme in further confirmation of the resulted gene product. With the *EcoRI* digestion, the *rbcL* gene product was digested to produce two fragments (~ 200 and 450bp). Results indicated that modified protocols can be used in DNA barcoding of genus *Nymphoides* to assess genetic diversity of the genus.

Keywords: Chloroplast genome, DNA barcoding, *EcoRI* restriction digestion, *rbcL*