



Comparative Identification of Morphological Variation of Locally Available Selected Leafy Vegetables in Low Country Intermediate Zone

J.O. Kaushalya^{a*}, N. Dahanayake^a, R. Hafeel^b, B. Perumpuli^a

^a*Faculty of Agriculture, University of Ruhuna, Sri Lanka.*

^b*Regional Rice Research and Development Center, Bombuwala, Sri Lanka.*

Abstract

The study was conducted using 20 different leafy vegetables that are locally available, most of which belong to the underutilized category in Sri Lanka. The 20 species have nutritional and medicinal advantages. However, information on variations in morphological traits, nutritional content and geographical distribution is limited to these species. Otherwise, people are not very aware of the traits of those leafy vegetables for identification. An online survey was conducted to obtain primary data regarding consumer comprehension of certain leafy vegetables. It indicates that, compared to other leafy vegetables, underutilized leafy vegetables are less conscious. The main objective of the study was to identify the morphological variation of species and analyse the chlorophyll content and leaf colour values. The leafy vegetable was planted in potting media that contained cow dung, sand, and topsoil at a 2:1:1 ratio. The weather conditions and soil conditions of the growing area were observed during the four-month period. Using a completely randomized design, pots were arranged randomly with three

replications. Using the samples collected from the field, characterization was carried out using visual observations and laboratory methods. The shape, margin, apex, base, and venation of the leaf were used to categorize species. The traits of the leaves and their chlorophyll content and leaf colour value determine how different species differ from one another. The data obtained from experiments were used to perform one-way ANOVA. Mean separation was done by using the turkey test. The statistical analysis was done using the MINITAB software version 19. A statistically significant difference was stated at $p < 0.05$. The total chlorophyll content ranged between 0.091mg/g and 0.312mg/g, while the leaf colour L and b ranged between 18.6 – 48.13 and 11.93 – 41.88, respectively. Using these morphological traits of leafy vegetables, a dichotomous key was prepared for deep identification among variations. The information gathered in this study will be useful to researchers, horticulturists, botanists, consumers, and plant breeders who are interested in these leafy vegetables.

Keywords: Characterization, Leafy vegetables, Nutrition Content, Underutilize, Variation

*Corresponding Author: Kaushalya4717@ags.ruh.ac.lk