

Morphological Characterization and Diversity Analysis in Ilima (*Sida fallax*)

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Abstract

The use of native Hawaiian plants as ornamentals has grown in the last two decades due to state laws aimed at promoting the use of natives in landscaping. Despite increased awareness and use of native Hawaiian plants, species and varieties available in nurseries are limited. Ilima (*Sida fallax*, Malvaceae) is a culturally important species commonly used in leis and in landscaping. Although various forms exist, ranging from the prostrate coastal ecotype to the upright mountain ecotype, cultivar development has been limited. Collection, characterization, and evaluation of plants from different islands and habitats is essential for developing horticultural selections. In this study, 19 accessions of ilima were collected from wild and cultivated sources on four islands (Kauai, Maui, Molokai, and Hawaii) and grown in a common garden.

Morphological characterization was done using a descriptor list and assessed using the Shannon-Weaver Diversity Index. High (> 0.67) to medium (0.34-0.66) levels of diversity in 15 quantitative and qualitative characteristics were observed. Characteristics exhibiting a high diversity index were leaf length (0.81), leaf width (0.71), plant canopy (0.72), stem diameter (0.79), and number of plant samples with open flowers (0.69). Morphological characteristics with medium level of diversity included position of the lamina (0.39), mature leaves (0.53), leaflets (0.52), plant height (0.41), number of branches (0.63), floral diameter (0.55) and number of open flowers (0.60). A low level of diversity (< 0.33) was observed in petiole color, petiole orientation, growth habit, and floral type.