

Diversity of Leaf Morphology among *Syzygium cumini* (Madan) Trees from Different Regions of Sri Lanka

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Syzygium cumini (L.) Skeels (Madan), commonly known as Jamun or black plum is a large evergreen multipurpose tree belonging to the family Myrtaceae. Though the world production of *S. cumini* fruit is estimated at 13.5 million tons, it is considered as an underutilized fruit crop. In Sri Lanka there is a vast potential for this fruit crop to upgrade its status from underutilized to well utilized level. The *Syzygium cumini* fruits are known to be a good source of iron and are used as an effective control agent against diabetes, heart and liver trouble in Ayurvedic and other folk medicines. Therefore, it is worth exploring its contribution to the healthy life of consumers. Further, wide variation of the tree in nature could potentially support in reinforcing the food security even in the face of global climate change scenario by identifying trees with the best characters. Leaf morphological variation could potentially indicate possible taxonomic variation and is central to plant taxonomy and systematics. In order to explore the leaf morphological variation across different geographical locations in Sri Lanka, leaf samples of *S. Cumini* were collected from seven sites namely Kalpitiya, Batticaloa, Ampara, Hambanthota, Udawalawa, Knuckles region and Belihuloya. Twenty five trees were randomly selected from a site and leaf area, leaf length, leaf width, petiole length, internode length and angle of leaf vein to the mid rib were measured using the Image J software. Leaf morphology measurements varied highly among the selected regions. Especially average leaf area of *S. cumini* was recorded as 31.23cm² with the smallest from Hambanthota (12.11cm²) whereas the highest was from Batticaloa (82.23cm²). When leaf parameters are considered, tree population in Batticaloa and Belihuloya are highly deviated from each other as well as from the rest of the regions sampled. Based on leaf morphological parameters, three clusters were identified where trees falling to all three clusters were observed in Ampara and Batticaloa. This indicated higher morphological elasticity of plants found in those areas. Trees in cluster two were found restricted to Ampara and Batticaloa Districts which was regional specific. Cluster three was common in all the areas. This study confirms there exists a high variation of leaf morphology among *S. cumini* trees in selected regions in Sri Lanka hence providing the potential for identifying unique plants with favorable characters for varied conditions in the face of climate change.

Keywords: leaf area, leaf length, leaf morphology, leaf width, *Syzygium cumini*