Characterization of Yard Long Bean [*Vigna unguiculata* ssp. *Sesquipedalis*] Germplasm for Future Breeding Programs

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Yard Long Bean (*Vigna unguiculata* ssp. *sesquipedalis*) belonging to family Fabaceae is a very popular leguminous vegetable crop grown and consumed in Sri Lanka. Plant Genetic Resources Centre (PGRC) at Gannoruwa, Peradeniya has conserved 728 accessions of yard long bean (YLB) in Sri Lanka. This experiment was conducted at the open field of PGRC, Gannoruwa, Peradeniya to characterize 42 uncharacterized accessions and one recommended variety; Gannoruwa A9 was used as the check variety with reference to characterization catalogue of YLB (PGRC, 1999). The characterization catalogue has a 29 qualitative and quantitative morphological character list. According to the results, only 19% were dwarf and 81% showed twining growth habit with four types of twining variations. Accession 19 had the minimum number of days for floral initiation and accession 1605 showed the minimum days for harvesting of green pods. Accessions 1094, 1141, 2352, 289, 1165 and 1298 had red to violet colour pods and 29% of the accessions had variegated pods. Gannoruwa A9 showed maximum values when considering pod length, pod width and pod weight. There were only three types of seed shapes as Kidney (74%), ovoid (17%) and Rhomboid (9%). The accession 1094 had the maximum value for hundred seed weight. The dendrogram obtained using morphological characters separated four major clusters at the distance of 1.5. The first cluster contained only 3 accessions 1356, 344, 1150. The second cluster contained 7 accessions. The third cluster was the largest with 30 accessions. And the fourth cluster was the smallest with only 2 accessions; Gannoruwa A9 and accession 689. According to the results obtained for Principal Component Analysis (PCA) at least 10 PCs were required to explain 78.9%-character variation among accessions. These results are very much important for systemic germplasm conservation and utilization of prominent traits for crop varietal improvement programs.

Keywords: Accession, Crop improvement, Diversity, Morphological characters, Yard long bean

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