Evaluation of Agronomic Characters of 'egusi' Melon Genotypes from Various Agro-Ecological Zones of Nigeria

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Abstract

Evaluation of agronomic characters of 'egusi' melon genotypes from various agro-ecological zones of Nigeria was carried out in order to determine their variability and identification of characters responsible for the variation pattern. Eleven agronomic characters were measured from field evaluations of fifty 'egusi' melon genotypes. Analysis of variance revealed that there was significant agro-ecological effect for all the characters measured except for number of days to germination and fruit circumference. The highest yield was observed for the genotypes from the rainforest-5 agro-ecological zone ($2092\,\mathrm{kg\,ha^{-1}}$). The highest genotypic coefficient of variation was observed for seed yield (63.09) and the least for fruit circumference per plant (5.02). Phenotypic coefficient of variation ranged from 2.81 for fruit circumference per plant to 63.02 for seed yield. Broad sense heritability estimates ranged from 31.27 % for fruit circumference per plant to 99.78 % for seed yield. High heritability estimates were also observed for 100-seed weight (99.23 %), fruit weight per plant (99.01 %), seed weight per fruit (97.50 %) and vine length per plant (97.86 %). The four principal components had eigen values greater than one and these accounted for 35.26, 23.70, 19.37 and 12.12 % of the total variation individually and 90.46 % cumulatively. Characters such as number of days to flowering, number of days to first fruiting, fruit weight per plant and seed weight per fruit were the most discriminatory in determining the overall variation pattern in the genotypes. Both single linkage clustering and component biplots analysis showed the distinction of the genotypes from rainforest-5 agro-ecological zone from all others. The information from this study will help in future breeding programmes for the conservation and improvement of melon genotypes to help bridge the gap between researchers and end users.

Keywords: Agro-ecological zones, biplots, clustering analysis, melon, Nigeria

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