

14th Annual Conference on
CROP SCIENCE AND AGRICULTURE
November 29-30, 2018 Bali, Indonesia

Characterisation of *Jatropha curcas* l germplasm within Botswana using morphological and molecular markers (SSR)

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Jatropha curcas L is an undomesticated plant species that has recently received great attention for its utilization in biofuel production in many countries including Botswana. The experiment investigated 30 *Jatropha curcas* accessions, and the results revealed high significant differences ($P < 0.01$) in the thirty accessions for peduncle length, number of seed per fruit, length of fruit stalk, fruit length, fruit width, seed length and width, seed weight, leaf length and width, petiole length, total flower per cluster, female and male flower per cluster and number of fruit per. The qualitative characters revealed substantial amount of variability among the accessions except in fruit shape, stem color and flower color. Multivariate cluster analysis based on morphological characters grouped the accessions into four clusters at dissimilarity coefficient of approximately 1.37 indicating a wider variation. Molecular characterization revealed four distinct clusters at 0.85 genetic similarity coefficients and this indicates narrow genetic diversity. Correlation between morphological and molecular markers showed negative, positive and no correlation relationships. Eight morphological characters and six molecular markers correlated positively with r values ranging from 0.557 to 0.662. The morphological and molecular markers were both clearly able to cluster the Ghana accession away from the other accessions. The morphological characters that separated the Ghana accession from others were seed weight and inflorescence compactness.

Biography

Samodimo Ngwako completed PhD at the University of Birmingham in 2003. He is the Acting Dean of the Faculty of Agriculture at Botswana University of Agriculture and Natural Resources, Botswana. He is an Associate Professor in Plant Breeding and was the Head of Department of Crop Science and Production from 2011 to 2017. He has published more than 20 papers in reputed journals and has served as an editor for a number of journals.

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