ABSTRACT

Background: Bambara groundnut [*Vigna subterranea* (L.) Verdc.], an indigenous drought tolerant crop of African origin is one of most important leguminous crop in Sub-Saharan Africa. Small-scale farmers continue cultivating unimproved landraces over the production areas in Kenya. Bambara exist variously as mixtures of seeds, which contain variable types of seed morphology which need to be agronomically and phenotypically differentiated. The study aimed at characterizing Bambara groundnuts collected in Kenya using morphological markers.

Methods: One hundred and five germplasm assembled from four major growing agro-ecologies (Busia, Kakamega, Bungoma and Vihiga Counties) and Kenya National Gene bank, were evaluated at the Kenya Agricultural and Livestock Research Organization (KALRO) - Alupe (0.4347° N, 34.2422° E) in a randomized complete block design with three replications in the long and short rains of 2015. Nineteen quantitative traits and seven qualitative traits were observed and measured at different growth stages and during harvesting.

Result: Many landraces displayed pointed, round and yellowish pod, with grooved and oval seeds. About 49.4% had round leaves, 21.5% had elliptical leaves, while 55.7% were heterogeneous for leaf shape. Quantitative traits were significant ($p \leq 0.05$) except for seed weight, seed number per plant and number of stems. The first four principal components accounted for a total of 73.1% of the variations. germplasm were divided into two distinct clusters. Leaf morphology variations could be used as a reliable phenotypic marker in Bambara breeding.

KEYWORDS

Bambara | Landraces | Morphological Traits | Variation