Njoka F.M., Okwany Z.A., Githui E.K., (2010). Molecular genotyping of selected soybean (*Glycine max L.*) genotypes grown in different regions of East Africa; *African Journal of Plant Science vol. 4*, May 2010. pgs. 128- 134.

ABSTRACT Soybean (Glycine max (L.) Merril) is one of the most popular pulses because of its protein content and nodulating ability. However, most farmers and researchers do not have sufficient genetic information of the genotypes that they grow. This research aimed at determining the molecular characteristics of selected soybean genotypes grown in different regions of East Africa and make recommendations to the farmers and researchers. Genotypes were collected from Uyole, Ukiriguru, Kawanda, Namulonge, Njoro and Embu Agricultural Institutes as well as from farmers. Molecular analysis was done by DNA being extracted according to phenol chloroform method. This was followed with PCR process using custom ordered pair of primers that corresponded to the flanking ends of the targeted gene fragment (5S ribosomal genes). Restriction fragment length polymorphism (RFLP) and gene clean were then performed on the isolated PCR fragments. The elute was confirmed on agarose gel then sent for automated sequencing ABI prism (Applied Biosystems) at ILRI. The resulting gene sequences were compared with gene sequences of known Glycine species using various enzymes in computer based simulations. The gene sequences were then subjected to gene blast using MEGA 4 and resulted with a phylogenetic tree for the selected East African soybean. The studied cultivars were found to be closely related to Glycine max species. Enzyme Sac11 was identified as a marker for the East African soybean genotypes. These results may also assist plant breeders to produce hybrids with the best performing cultivars based on their genetic diversity.

Source