

Abstract

Seeds harvested from *Jatropha curcas L* can be used as raw material for biodiesel and bioenergy. The potential to spur rural economy and create a state of self sustainability is immense. Successful commercial cultivation is dependent on use of best yielding and stable genotypes which are identified by growing different accessions in different environments. However research on the stability of genotypes currently grown in Kenya is scarce. The objective of this study was to evaluate the effects of genotype-environment interaction and determine stable genotype that can be recommended to farmers and used in a breeding program. Using Eberhart and Russell method, stability analysis was conducted on plant height, girth diameter , number of branches, days to flowering , female: male flower ratio , number of fruits, seed weight (100) , seed moisture and oil content of forty nine accessions from two trials in different environments (Kibwezi and Thika). Time by location and location variability were the sources of interactions. Stability analysis showed that KJ2, KJ4,KJ6,KJ7,KJ12,KJ26,KJ27,KJ37,KJ39,KJ42 and KJ 44 were location specific while KJ3 ,KJ8,KJ19, KJ24 , KJ35,KJ45 and KJ46 showed less variation at the two sites. The rest of the 31 genotypes showed fluctuation between and within the two environments. The stability parameters that were indicative for adaptation were height, branching, days to flowering and number of fruits per plant for the first group while plant height and branching were evident for the second group respectively. Girth diameter, seed moisture and oil content varied in all genotypes across the environments.