

## ABSTRACT

ABSTRACT Pumpkin (*Cucurbita moschata* (Lam.) Poir.) is unsystematically produced in many tropical countries and development of standard cultivars using naturalised and adapted genetic resources has not yet been done. The present study evaluated naturalized pumpkin accessions yield in Kakamega, Embu and Nyeri in 2012 and 2013 and quality in Chuka in 2015 to identify superior ones that could be developed into commercial cultivars. The accessions were planted on-station in Kakamega and Embu for mother trials, on farmers' farms in Kakamega and Nyeri for baby trials, and on-station in Chuka for TSS assessment. Mother and baby trials and quality assessment plants were spaced at 2m x 2m in a completely randomised design. Qualitative and quantitative data were subjected to Chi-square analysis and ANOVA, respectively. Significant differences were separated using LSD test at  $P=0.05$ . The qualitative and quantitative traits measured were significant ( $P < 0.05$ ) and higher in local accessions compared to the control exotic 'Sugar Baby'. The number of fruits per accession ranged from 1 to 9 in mother trials and 1 to 16 in baby trials. Accessions KK-40 and NY-154 produced highest 9 and 16 fruits, respectively, while NY-135, KK-21 and KK-22 produced 1 fruit each. Average fruit weight per plant was 4.2 kg for NY-130 and 0.2 kg for NY-77 in mother trials. Total fruit weight ranged from 0.2 to 15.9 kg in mother trials and 0.25 to 26.5 kg in baby trials. The highest 26.5 kg total fruit weight was for KK-30 in baby trials, and lowest 0.2 kg was for NY-77 in mother trials. Fruit firmness ranged from 3 to 10.2 kg/cm<sup>2</sup>, while TSS ranged from 2.9 to 14% brix. Highest fruit firmness was 10.2 kg/cm<sup>2</sup> for KK-9, while flesh firmness was 3 kg/cm<sup>2</sup> for KK-46. Highest 14% brix was for KK-12 and KK-30, while lowest 2.9% brix was for KK-56. The significant and superior variation of naturalized pumpkin accessions in yield and quality, compared to the exotic 'Sugar Baby', presents material for selection and development into commercial, high value pumpkin production cultivars. The accessions perform better regardless of whether they are grown on-station or on-farm, meaning that what matters most is optimization of crop management practices. In this regard, KK-30 is recommended for selection and development into a standard cultivar, based on its highest yields and TSS.