Proceedings of the 13th ISTRC Symposium, 2007
pp. 177 - 185

Effect of altitude and plant age on cyanogenic potential, dry matter, starch and sugar content in cassava genotypes

Ntawuruhunga P.1, Whyte J.B.A.1 and Rubaihayo P.2
1IITA, Eastern and Southern Africa Research Center (ESARC), Namulonge, P.O. Box 7878, Uganda
2Crop Science Department, Makerere University, Po. Box 7062, Uganda

Abstract. A study was conducted at three locations in Uganda (Bulisa: 650 m asl; Namulonge: 1150m asl and Kapchorwa: 1750 m asl) to evaluate the effect of altitude on dry matter, starch and sugar content, and cyanogenic potential in cassava. Ten genotypes from five different sources were used in a randomized complete block design with three replications, and data were repeatedly measured at three month intervals up to 15 months after planting. The mixed model analysis indicated significant ($p<0.001$) differences among genotypes at each elevation for dry matter production. Significant interaction between plant age and source and between genotypes within source and plant age at all elevations indicated genotypic differences among sources as well as among genotypes within sources in production and partitioning of assimilates. The study indicated that dry matter content was higher at high altitude than at low and mid altitude. Highly significant ($p<0.001$) differences for CNP were also observed between sources and among genotypes within source at mid altitude. Plant age effect was significant for CNP. Significant ($p<0.001$) interactions between plant age with source and with genotypes nested within source indicated that genotypes as well sources produced different amount of CNP during plant growth cycle, obtaining high levels at all elevations at around six months after planting. The study also showed that starch and sugar contents were high at higher altitude than at low and mid altitude. A similar trend was observed with dry matter content.