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Non-structural Carbohydrate Profile of some Tropical Forage Grasses

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Abstract

Forage crops are one of the important feed sources in sub-Saharan Africa. They provide organic nutrients, such as structural and non-structural carbohydrates (NSC), which are required for livestock production. In temperate forages, it has been noted that increased NSC levels are associated with rapid regrowth of forage crops, increased energy value of feed and tolerance to drought stress, however the information about NSC content and seasonal dynamics in tropical forages is limited. This study was conducted to examine NSC content of some grass forage grass species held in the ILRI field genebank in Ethiopia. NSC content of five perennial grass species was determined using the Anthrone colourimetric protocol. The plant samples of 60 accessions from 5 grass species were harvested after every three-months of regrowth, at the beginning of the day, and the harvested samples were fully dried and quantified for NSC at the ILRI animal nutrition laboratory. The results of the study indicated the existence of significant accession, species and seasonal variation in NSC content. The highest overall NSC content was observed in *Urochloa decumbens* followed by *Cenchrus purpureus* but the variation within species was, in most cases, as large as the variation between and NSC levels also varied with the harvest season. In addition significant accession difference has been obtained in each species which signifies accession variations are also important for improving NSC content within each grass species. Generally, the study provides an insight into opportunities for future development of feed resources with increased NSC content from grass species and the fluctuation of NSC content over the season for enhanced livestock production.

Keywords: Feed nutrition, Forage grasses, NSC, tropical forage