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### **New sorghum germplasm for high stalk sugar content and biomass yield**

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Sorghum is a multi-purpose crop, grown for food, feed and bioenergy purposes. A large variability exists in germplasm collections for stalk sugar content and biomass yield, beside grain yield and other important traits. Identification of useful traits from the conserved germplasm gives an opportunity to incorporate new sources of variation in to the crop improvement program. In this study, 916 newly acquired accessions from Bulgaria, Sudan, Tanzania and Uganda were characterized for stalk sugar content (Brix %) during the 2013-14 postrainy and identified 140 high Brix % accessions. These 140 accessions were evaluated for Brix %, juice content and biomass yield potential, along with standard sweet sorghum cultivar (Urja) in the 2014 rainy and 2014-15 postrainy in an *alpha*-design with three replications. Analysis of variance revealed significant variability among germplasm for Brix %, juice weight and bagasse weight. Average Brix %, juice content and bagasse weight were higher in the rainy than in the postrainy season. Twenty seven accessions showed significantly higher stalk sugar content (Brix 15.0 to 19.2%) in rainy, and six of them (IS# 42624, 42899, 42887, 43078, 42952, 42761; originated from Sudan; belong to either *caudatum*, *caudatum-bicolor*, *guinea-caudatum* or *durra-caudatum*) had significantly high juice content and biomass than the sweet sorghum cultivar Urja (11.2% Brix, juice content 175.2 g plant<sup>-1</sup> and bagasse weight 351.0 g plant<sup>-1</sup>). However in the postrainy, none the accessions was significantly superior to Urja although five accessions had Brix % ranging from 15 to 18% compared to 16.2% in the Urja. The accessions identified in this study could be utilized in breeding high stalk sugar content and high biomass yielding sorghum cultivars.