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Variation in starch and root quality traits in cassava

Sánchez, Teresa; Ceballos, Hernán; Dufour, Dominique; Mafla, Graciela; Calle, Fernando; Debouck, Daniel; Pérez, Juan C.; Morante Nelson and Tohme, Joe

¹ International Center for Tropical Agriculture (CIAT). Cassava Breeding Project. Palmira, Colombia.

e-mail of contact person (Hernán CEBALLOS): h.ceballos@cgiar.org

Title:

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Abstract:

There is wide variation in the description of starch quality traits for cassava and little variation had been reported until recently. CIAT, therefore, initiated a project to evaluate and screen for starch quality traits in the entire germplasm collection. High value traits (for example, amylose-free starch and high-protein content) have been identified. Up to now, starch samples from more than 4000 accessions (3272 landraces and 772 improved clones) from the cassava germplasm collection have been obtained and analyzed. The size of this sample is very large and the information it provides very robust. Average dry matter content of the landraces was 32.8% whereas for improved clones it was 36.7%, but starch content was the same (84.5%). Cyanogenic potential ranged from 14 to 3274 ppm for an average of 325 ppm. Averages for landraces were slightly higher (339ppm) than in improved clones (267 ppm). Total sugars and reduced sugars were 3.68 and 1.25, respectively (landraces) and 4.05 and 1.56 (improved clones). Average amylose content was 20.7% across all the genotypes evaluated. There was little variation between landraces and improved clones for water absorption (4.59%); water solubility (2.17%); easy cooking (2.80 min); pasting temperature (65.2 °C); maximum viscosity (777 cP); breakdown (298 cP); and consistency (156 cP). Clarity of the gels was 44.5% for landraces and 48.1% for improved clones.