An interesting cassava cultivar

UnB 702

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Abstract

This cultivar is an interspecific periclinal chimera, which has its epidermis layer constituted by Manihot esculenta (cultivar 032), and internal tissues formed by Manihot fortalezensis. It is a very productive cultivar that gives about 14 kg per plant after one year using 1m x 1m distance. It was synthesized by grafting cassava a (diploid cultivar UnB 032) onto stock of diploid M. fortalezensis, cut and treated by naphthalene acetic acid. In addition to the exceptional high productivity of root due to epigenetic effect, it has a very vigorous vegetative growth and it is easily propagated by cuttings.

Key words: graft, naphthalene acetic acid, epigenetic effect, periclinal chimera

Introduction

This cultivar is an interspecific periclinal chimera formed by epidermal layer of cassava cultivar Manihot esculenta Crantz var. UnB 201 (2n=36), and internal layers of M. fortalezensis Nassar, Ribeiro, Bomfim et Gomes (2n=54) (Nassar, Bomfim, 2013). Morphological exam shows winged fruit characteristics of cassava due to dominant gene, the cytogenetic analysis of root tips and sporocytes shows 2n=54, the chromosome number of M. fortalezensis. To synthesize it cassava cultivar 201 was grafted onto stock of M. fortalezensis, cut, and surface treated by hormone naphthalene acetic acid. It is vigorous in vegetative growth and productive of edible root which reaches 14 kg after one year old using distance 1m x 1m between plants. Epigenetic effect is believed to be the cause of this exceptional enlargement of root and it was noted in all chimeras produced by our program.

Cultivar botanical description

This description follows Rogers and Appan (1973) to Manihot species. Erect to semi-erect shrub ca. 2-2.5 m (Fig. 1), with latex, 1-3 central stems from the same base, 3.5-6 cm diameter, purplish green young stem, greyish brown mature stem, cream cortex and white xylem; purplish green apical leaf and apical branches. Slightly enlarged nodes and petiole scars. Purple petioles, ca 35 cm long. Leaves alternate, palmately 5-7 lobes; very narrowly peltate to non peltate, deep green adaxial face and light green abaxial face (Fig. 2). Central lobes obovate with subapiculate apex; entire margins to slightly undulating. Slightly pubescent, bifurcated,
and caduceus stipules 1 cm long. Inflorescence a monoic, terminal panicle (Fig. 3). Bracteoles
and bractlets entire and semifoliaceous. Staminate buds ovoid-ellipsoid. Pistillate basal buds.
Tuberous and cylindrical roots (Fig. 4) reaching 70 cm long, thin dark brown rough periderm,
with few constrictions. In some cases more than one tuberous root left from the same point.

References


NASSAR, N. M. and Ortiz, R. Cassava to feed the poor. Scientific American 2011.