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IN VITRO MUTAGENESIS IN CONGOLESE CASSAVA ACCESSION, BOMA AND REVERSE GENETICS STRATEGIES (TILLING) STUDIES

Cassava is contributing to food security in the Democratic Republic of the Congo. Major constraints for cassava production for are the biotic and abiotic stresses. The feasibility of overcoming these problems by only classical breeding is hampered by several genetic factors. Thereby, plantlets of cassava line Boma obtained from meristems culture and/or cassava 2 node-explants were cultured on liquid MS medium free of plant growth regulators and complemented with 20g sucrose for the determination of the optimal dose. Ten (10) explants each having 2 nodes were irradiated at 5, 10, 15, 20, 25 and 30 Gy. After 4 to 5 weeks of growth at 26℃, plantlet height and weight, number of nodes and leaves were measured and expressed as a percentage of the control. The optimal dose was calculated using the linear regression equation. For bulk irradiation and Chimeras dissociation 1000 explants with 2 nodes each were placed in 10 ml liquid MS media and irradiated at the determined optimal doses: 3, 6, and 9 Gy. Irradiated materials were sub-cultured and chimeras were dissolved after 14 days. For TILLING (Targeting Induced Local Lesions IN Genomes) of cassava genes involved in coding for starch synthesis: SSII, SSIII, susy, susy2, sps and X77012 were used. 3000 putative cassava mutant clones were obtained. The Tilling cassava method showed some very low frequencies of mutations.

Country or International Organization

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