

C2078. COST-EFFICIENT NUTRIENT SOURCES FOR TISSUE CULTURE OF CASSAVA (*Manihot esculenta* CRANTZ)

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Abstract

Tissue culture technology has been utilized in many countries in the production of disease-free planting materials for many crops including cassava. The application of this technology to a wide array of crops is, however, constrained by high costs associated with it. The objective of this study was to evaluate the possibility of using locally available salts and fertilizers as alternative nutrient sources for cassava tissue culture. A low cost medium for cassava micropropagation was developed. The conventional sources of four Murashige and Skoog (MS) macronutrients (potassium dihydrogen phosphate, potassium nitrate, ammonium nitrate and magnesium sulphate) were replaced with locally available fertilizers. A solid foliar fertilizer containing all the micronutrients was used as their alternative source. The conventional MS medium was used as the control. Both media were supplemented with 30 g/l of table sugar and 3 g/l of gelrite. Two cassava varieties, Muchericheri and KME1 were regenerated on the two media. The regeneration indices for both varieties on the two media were determined and compared. The cost of culture nutrients was reduced by 95.5% when the alternative nutrient sources were used indicating that this strategy can greatly boost affordability of healthy cassava seedlings. The two cassava varieties had the same regeneration index on the low cost medium with each having a mean of 4 nodes per plantlet. However, on the conventional medium Muchericheri had a significantly higher regeneration index than KME1 having produced 6 nodes per plantlet compared to KME 1 which had 5 nodes per plantlet. This indicates that the developed low cost medium can be applied to a wide scope of cassava cultivars unlike MS medium which had genotype-dependent regeneration efficiency. The regeneration indices of four nodes per plantlet on the low cost medium are within the accepted limit of 3-7 nodes per plantlet.

Key words: Cassava, nutrient sources, low cost medium, regeneration index