STUDIES ON THE INHERITANCE OF HIGH-CAROTENOIDS CONTENT IN CASSAVA ROOTS.

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Understanding the inheritance of synthesis and accumulation of carotenoids in cassava roots is very relevant for implementing breeding schemes that would maximize genetic gains. During the past four years a large study was conducted to provide information on the genetics of total carotenoids content (TCC) in cassava roots. From a group of 41 full-sib families five were selected because of their high average TCC values and also because of wide segregation in their progenies for this trait. From these five families, individuals with low, intermediate and high TCC levels were selected and, whenever possible, self-pollinated to produce S_1 seed. S_1 seed could be produced from individuals of only three of the five full-sib families originally selected. A total of 12 S_1 families were evaluated. In addition crosses between non-related genotypes with high-carotenoids levels were made to produce hybrid seed. Parent-offspring regression was used to estimate heritability both in the self-pollinated crosses as well as in the hybrid progenies. Heritability values were relatively high (above 60%). Interestingly data also suggested the occurrence of a recessive trait related to high-carotenoids content in at least one genotype. This recessive trait could actually be a factor that uses precursors required for the production of carotenoids, for the synthesis of other pigments that do not have much pro-vitamin A activity.

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