GENETIC TRANSFORMATION OF AVOCADO WITH S-ADENOSYLMETHIONINE HYDROLASE (SAMASE) AND EVALUATION OF TRANSFORMANTS AFTER THREE YEARS

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Avocado was genetically transformed with the gene SAMase that degrades S-adenosylmethionine, a precursor of ethylene. SAMASE is in pAG4092 under the control of an avocado fruit promoter with *nptII*, which confers resistance to kanamycin sulfate. Embryogenic avocado suspension cultures were cocultured with log phase acetosyringone-activated *Agrobacterium tumefaciens* strain EHA 105 containing pAG4092 in 50 ml of liquid medium for three days at 125 rpm in darkness at 25°C, and then transferred into fresh MSP3:1 medium supplemented with 200 mg litre^{-1} cefotaxime and 500 mg litre^{-1} carbenicillin for eight days with a change of medium after two days. Embryogenic cultures were then transferred into fresh MS3:1P medium supplemented with 50 mg litre^{-1} kanamycin sulfate and then four days later to fresh medium with 100 mg litre^{-1} kanamycin sulfate. Somatic embryo development occurred on semi solid MS medium supplemented with 30 g litre^{-1} sucrose, 20% (v/v) filter-sterile coconut water and 100-300 mg litre^{-1} kanamycin sulfate. The shoots from somatic embryos transformed with *samase* were excised and micrografted *in vitro* on decapitated 'Peterson' seedling rootstocks. Rapidly growing transgenic shoots were excised and grafted on 'Peterson' rootstocks in the nursery. In order to expedite flowering in 'Suardia' shoots containing *samase*, bud wood was grafted on 'Hass' and 'Lula' interstocks. Although flowering has not yet occurred, alterations in morphology, probably due to gene insertions at different loci, have been observed that appear to be stable. This strategy is intended to extend avocado shelf life and to enable on-tree storage of Antillean avocados.