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PB-90

AGROBACTERIUM -MEDIATED TRANSFORMATION WITH THE LATICIFER SPECIFIC HMGR1 GENE IN *HEVEA BRASILIENSIS*

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Hevea brasiliensis belonging to the family *Euphobiaceae* is a deciduous, sturdy, perennial tree with orthotropic rhythmic growth. Natural rubber (cis-1, 4-polyisoprene) is produced in the milky cytoplasm (latex) of specialized cells called laticifers. Natural rubber is mainly synthesized by the Mevalonate pathway, starting from simple sugar. The enzyme 3-hydroxy 3-methylglutaryl Coenzyme A reductase (HMGR) catalyzes the first step in isoprenoid biosynthesis, i.e., the synthesis of mevalonate from HMG-CoA. Due to the irreversible nature of this reaction, this enzyme is considered to play a rate limiting role in plant isoprenoid biosynthesis. *Agrobacterium* mediated genetic transformation was carried out using pBIB vector containing *hmgr1* gene under the control of super promoter. The target tissue for the transformation was embryogenic callus obtained from immature zygotic embryos. The screening of the transformed cell lines were performed with hygromycin. Antibiotic resistant cell lines emerged from the cultured cells at a frequency of 20%. Proliferated cell lines on frequent sub culturing produced transgenic embryos. Transgenic plantlets were produced from these embryos in the germination medium. The transgene integration was confirmed in the plants using PCR analysis and the plantlets were successfully acclimatized and maintained in the polybags. This is the first report on the regeneration of transgenic plants integrated with the *hmgr1* transgene in *Hevea*.

PB-91

AGROBACTERIUM - MEDIATED TRANSFORMATION OF IPT GENE IN TO COTTON FOR LEAF SENESCENCE

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We report high efficiency and successful genetic transformation in cotton (*Gossypium hirsutum* L.). Various factors like co-cultivation duration, different concentrations of acetosyringone and different concentrations antibiotics of transformation influenced were evaluated in efforts to improve the transformation efficiency for delay of leaf senescence with the construct pSG529. An approach that has already proved efficient in model plants but not in agriculturally important commercial crops. Primary evidence of transgene integration was confirmed by kanamycin leaf spotting assay on neomycin phosphotransferase II (*NPT II*) activity of selection marker. The transformed independent germ lines expressed the foreign gene was confirmed by PCR and Southern blotting techniques. In vivo and in vitro analysis showed that pSG529 plants exhibited higher chlorophyll content than control plants, morphologically difference from control plants and stay -green phenotype that has very important to understand molecular approach the internal hormonal regulations, biochemical pathways and potential to greatly improve the crop yield, quality and quantity aspects of cotton plants.