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Transient Gus Expression in Callus and *OsMADS1* Gene Transformation Using Organogenesis from Explants of Seeds in Hot Pepper (*Capsicum annuum* L.)

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We obtained two transgenic pepper plants from 255 seed explants infected with *Agrobacterium tumefaciens* LBA4404 (pGA1209) and the transgenic plants were shown expression of *OsMADS1* gene from the *Oryza sativa*. The optimal condition of *in vitro* plant regeneration has been obtained from hypocotyl explants on MS medium supplemented with 3 mg/L zeatin and 0.3 mg/L IAA for shoot induction. Optimal rooting condition was NAA 0.3 mg/L. Transformation frequency was 0.8% of total hypocotyls used. PCR and Northern hybridization analyses showed that the introduced gene was integrated and expressed stably in the regenerated plants. One of transgenic plants showed morphological changes such as dwarfism and early flowering. We also obtained transient GUS expression in pepper callus using particle bombardment. The highest efficiency was at 2.5 kgf/cm² (40 psi), 10-12 cm, and 60 cmHg, and they were considered as the optimal condition of the particle bombardment.

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Cloning and Characterization of cDNA Clones for New α -Tubulin Isotypes from Hot Pepper (*Capsicum annuum* L.) Fruit

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We had formerly reported two α -tubulin cDNA sequences encoding for divergent isotypes, *CaTubI* and *CaTubII* in hot pepper fruit. In addition, we predicted it from the result of genomic gel blot analysis that an α -tubulin gene family would contain one more isotype except for *CaTubI* and *CaTubII*. In this study, we isolated this new α -tubulin isotype cDNA sequence, *CaTubIII*. It could uniquely hybridized to 4.9 kb *EcoRV* digested genomic DNA fragment that was not identified by *CaTubI* and *CaTubII* specific probes, therefore, all α -tubulin family members were obtained. In the carboxyl terminal region where most amino acid sequence variations exist, it has a combination of four amino acids, glutamate, aspartate, leucine, and glycine, and also terminate tyrosine in similar with other α -tubulin isotypes. Their transcript accumulation patterns differ during fruit development and at several tissues comparing with other α -tubulin isotypes. On the basis of these results, it is suggested that there is a distribution of expression in transcriptional level among α -tubulin isotypes in order to guarantee the most optimistic expression according as spatial and developmental conditions.