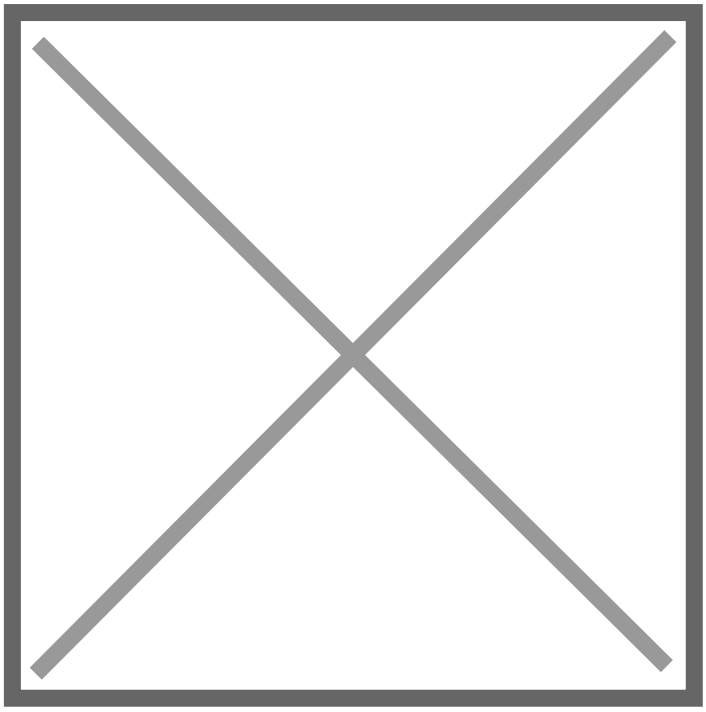
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Scientists develop new method for producing transgenic eggplant

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Scientists have developed an efficient variety Ã¢â?¬â??independent method for producing transgenic eggplant (Solanum melongena) via Agrobacterium tumefaciens -mediated genetic transformation.

Prof. G Lakshmi Sita, and Prof. G Franklin, Department of Microbiology and Cell Biology, Indian Institute of Science, have demonstrated for the first time that an efficient genotype Ã¢â?¬â??independent A. tumefaciens Ã¢â?¬â??mediated transformation of eggplant using root explants. Using this standardized protocol, root explants can be routinely utilized for the transformation of eggplant with various genes because of its high susceptibility towards A. tumefaciens and quick regeneration capacity on selection media.

The root explants were transformed by co-cultivation with A. tumefaciens strain LBA4404 harboring a binary vector pBAL2 carrying the reporter gene beta - glucuronidase, intron (GUS-INT) and the maker gene neomycin phosphotransferase (NPTII).

Transgenic plants were raised in pots and seeds. Histochemical GUS assay and polymerase chain reaction analysis of field established transgenic plants and their offsprings confirmed the present of the GUS and NPTII genes, respectively. Integration of T-DNA into the genome of
putative transgenics was further confirmed by the southern blot analysis. Progeny analysis of these plants showed a pattern of classical Mendelian inheritance for both the NPTII and GUS genes.

Eggplant is an important vegetable crop widely cultivated in countries such as Spain, France, Italy, Greece, North Africa, India, and China. In India, the eggplant fruit forms an integral part of the diet for the majority of the vegetarian population.

The annual production of this vegetable is severely limited by several soil-borne pathogenic viruses and major pests belonging to the order Lepidoptera (fruit borer). Sources resistance against Fusarium wilt and mites exist in the closely related spices Solanum integrifolium, which has been reported to be a possible source of pest and disease resistance for the improvement of eggplant.

However, owing to deleterious gene linkages, the incorporation of these traits into the eggplant gene pool by breeding has been slow and inadequate. Despite this, improvement through hybridizing somatic cells of sexually incompatible Solanum species has been employed as a potential method for introducing disease resistance traits.

Prof. Lakshmi Sita maintained that A. tumefaciens mediated transformation is an effective and widely used approach to introduce desirable genes into plants. In this research Guri and Sink were the first to report Agrobacterium Ã¢â?¬â??mediated transformation of eggplant, quickly followed by others. All of the transformation protocols reported by these investigators use hypocotyl, cotyledon or leaf segments as explants with low Ã¢â?¬â??frequency transformation.