Expression of plant-derived Dengue Virus E Protein for development of edible vaccine

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Abstract

Dengue viruses are mosquito-borne, positive-stranded RNA viruses of the genus *Flavivirus*. These are human pathogens with a worldwide prevalence. About 2.5 billion people in more than a hundred countries are estimated to be at risk of dengue virus infection, with millions of cases occurring every year around the world(1). There are four antigenically distinct serotypes of dengue viruses (DEN-1, 2, 3 and 4), which can cause a broad spectrum of illness ranging from mild febrile sickness to severe haemorrhagic, sometimes fatal, disease. In order to express the recombinant E protein in edible tobacco plant, a DNA fragment containing the Dengue Virus E protein gene was subcloned into a plant expression vector. The recombinant vector was transformed to tobacco plant using *Agrobacterium*-mediated transformation method. The integration of the recombinant plasmids into tobacco chromosomal genome was verified by genomic PCR. Expression of mRNA and recombinant E protein was confirmed by Northern blot analysis and by Western blot analysis respectively. These results showed that the recombinant Dengue virus E protein can be produced in tobacco plants and will be tested for immune response to usa as an edible vaccine.

References

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