Czech Journal of GENETICS AND PLANT BREEDING

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Czech J. Genet. Plant Breed.

Kim T.-G., Yang M.-S.:

Expression of *Escherichia coli* heat-labile enterotoxin B subunit in transgenic tomato (*Solanum lycopersicum* L.) fruit

Czech J. Genet. Plant Breed., 50 (2014): 26-31

We report a feasibility study for expressing the LTB protein (*Escherichia coli* heat-labile enterotoxin B subunit) via *Agrobacterium*-mediated transformation of tomato (*Solanum lycopersicum* L.). We produced five regenerated plants obtained on the selection medium supplemented with an antibiotic. Stable integrations of the LTB gene into the genome of these plants were confirmed by Southern blot hybridization. Western blot analysis showed that only two of the five T_0 transgenic tomato plants expressed the pentameric LTB protein in

the fruits. An enzyme-linked immunosorbent assay indicated that these two plants synthesized the LTB protein bound specifically to GM1 ganglioside, suggesting that the LTB subunits formed active pentamers. The LTB protein produced in tomatoes can be a potential candidate for inexpensive, safe, and effective plant-based vaccines.

Keywords:

B subunit of *E. coli* heat-labile enterotoxin (LTB); LTB gene; *Solanum lycopersicum*; plant-based vaccine; tomato fruit; transgenesis

[fulltext]