GENETIC TRANSFORMATION OF TOMATOES WITH *ASCARIS* SPP. IMMUNOGENIC GENE

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Ascariasis, a neglected parasitic disease, represents a global public health problem due to its high morbidity and frequent reinfection. Vaccines represent a promising strategy for control, and several immunogenic proteins from *Ascaris* sp. have been studied for this purpose. The aim of this study was to genetically transform tomato (*Solanum lycopersicum* cv. Micro-Tom) with an immunogenic gene from *Ascaris* sp. The coding sequence of the BOT protein was optimized for expression in the plant using JCAT and synthesized in pUC57 (Genscript). The gene was cloned into pCR8 (Gateway system), transformed into *Escherichia coli* and selected in LB/spectinomycin. After recombination with pMDC32, a new transformation and selection in LB/kanamycin was performed. Colonies were confirmed by PCR using M13 primers. The pMDC32/DNA plasmid was digested with SpeI and HindIII enzymes for gene confirmation, and then introduced into *Agrobacterium tumefaciens*. The cotyledons of tomato seedlings were transformed with the recombinant bacterial suspension and selected with hygromycin. DNA from young leaves (T2 generation) was analyzed by PCR using primers from the vector and the target sequence, confirming gene integration in 10 out of 13 transformants (77%). Tomatoes offer a promising platform for antigen expression due to their ease of cultivation and high biomass yield. Successful transformation with the *Ascaris* gene paves the way for protein analysis and potential application as an edible vaccine against ascariasis.

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