Expression of recombinant human acetylcholinesterase in transgenic tomato plants

By soreq
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By soreq December 4, 2011


Abstract:

Enzyme therapy for the prevention and treatment of organophosphate poisoning depends on the availability of large amounts of cholinesterases. Transgenic plants are being evaluated for their efficiency and cost-effectiveness as a system for the bioproduction of therapeutically valuable proteins. Here we report production of a recombinant isoform of human acetylcholinesterase in transgenic tomato plants. Active and stable acetylcholinesterase, which retains the kinetic characteristics of the human enzyme, accumulated in tomato plants. High levels of specific activity were registered in leaves (up to 25 nmol min(-1) mg protein(-1)) and fruits (up to 250 nmol min(-1) mg protein(-1)).

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