E202 Isolation and Characterization of Acid Invertase cDNA Clone in Hot Pepper (Capsicum annuum L.) Fruits

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An acid invertase cDNA clone, PEPAIV-18, was isolated from the red pericarp cDNA library of the hot pepper (*Capsicum annuum* L. cv. Nok-Kwang) fruit. The PEPAIV-18 clone has 2217 nucleotides and one open reading frame encoding 641 amino acid residues. Analyzing the deduced amino acid sequence, PEPAIV-18 proved to have 24-amino acid transmembrane anchor region in its N-terminal. It implies that the acid invertase in hot pepper is localized in membrane but in cytosol. This clone showed high homology to tomato acid invertase, pAiv-1, in nucleotide and deduced amino acid sequences. In the Southern blot analysis, this clone existed as single or low copy number on the genome of hot pepper. The clones contained two well-conserved regions which appeared specifically in acid invertase of other plant species (*eg.* tomato, arabidopsis, *etc.*) and yeasts. During fruit development, PEPAIV-18 showed a preferential expression pattern especially in ripe red stage. This result implies that the acid invertase in hot pepper fruit is involved in the pepper fruit ripening.

E203 The Possibility of the Coupling of ACC-Uptake with cytosolic Ca^{2+} Increase

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The mechanism of the influx of exogenous ACC into the cytosol through the plasma membrane has not been thoroughly studied. On the basis of previous data which explain the intracellular transport of ACC through the tonoplast into the vacuole, we suggested that the plasma membrane potential could be depolarized by the influx of H^+ after ACC uptake into cytosol. The change of membrane potential could open the Ca^{2+}-channel in the plasma membarane and also release the stored Ca^{2+} into cytosol. Therefore, the coupling of ACC-uptake with cytosolic Ca^{2+} increase could be respected. This possibility was partially tested after the uptake of endogenous ACC by determing the cytoslic Ca^{2+} using a Fura-2AM, a calcium specific fluorescence dye. The promotion of exogenous ACC induced ethylene production by the artifical increase of cytosolic Ca^{2+} in mungbean cells was also tested. From these results, the effective conversion of transported ACC into ethylene in perception cells could be respected.