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BLOSSOM-END ROT OF TOMATO PLANTS MAY NOT BE DIRECTLY CAUSED BY CALCIUM DEFICIENCY

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Abstract:

The occurrence of blossom-end rot in tomato fruits is usually said to be caused by calcium (Ca) uptake deficiency in tomato plants (*Lycopersicon esculentum* Mill.). In order to investigate the physiological disorder in Ca metabolism in such tomato fruits, tomato plants were grown in high concentrations of nutrient solution in hydroponic culture, i.e., the electric conductivity of the solution was 0.6 S/m. The concentration of Ca ions in a single growing fruit was highest in sap extracted close to the calyx than in sap extracted from tissue on the tip of fruit, and thus, a concentration gradient of Ca ion existed in growing fruits. The concentration of Ca ion was significantly lower in fruits than in stems, leaves and roots. However, fruits that just started having blossom-end rot had similar distribution and concentration of Ca ions compared with the normal fruits. It suggests that Ca deficiency in fruits may not be the direct cause of occurrence of blossom-end rot in tomato plants. When two varieties of tomato plants were compared for Ca ion uptake abilities, it was found that occurrence of blossom-end rot was unrelated with the Ca absorption. This suggests that occurrence of blossom-end rot is related to metabolic disorder regulated with gene expression under stress conditions.

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