

عنوان مقاله:

Characterization of Arabidopsis seedlings growth and development under trehalose feeding

محل انتشار:

مجله سلول و تحقیقات مولکولی، دوره 2، شماره 1 (سال: 1389)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

Trehalose is the alpha, alpha-1, 1-linked glucose disaccharide. Its metabolism is found in a wide variety of organisms and is seen as evolutionary old. Trehalose metabolites are, however, present at only very low concentrations and their role in plants are not understood. The physiological effects of 100 mM trehalose on growth and carbon allocation in seedlings are characterized in this paper. Trehalose feeding to Arabidopsis thaliana elicits strong responses. On 100 mM trehalose, seedlings germinate and extend cotyledons but fail to develop primary leaves. The primary roots do not grow beyond 2-3 mm and there is not any starch in root tips. In light, growth arrest on 100 mM trehalose can be rescued by exogenous supply of metabolisable sugar. Trehalose feeding results in anthocyanin accumulation and chlorophyll reduction. Trehalose causes cells of the root extension zone to swell and lysis. Trehalase expression analysis showed that WT seedlings grown on trehalose have 10-fold induced AtTRE1 expression compared to the sorbitol treatment

کلمات کلیدی:

trehalose, T6P, trehalase, carbon allocation, growth, Arabidopsis

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