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Shotgun proteomic analysis of ascorbate-primed and unprimed wheat seeds during germination under salinity conditions

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Seed priming with antioxidant compounds has been successfully employed to improve salt tolerance in crop plants. For understanding the potential mechanisms underlying this priming effect a gel-free shotgun proteomic analysis was performed comparing between unprimed and ascorbate-primed wheat seeds during germination under saline and non-saline conditions. Of 697 identified proteins 167 were significantly up- or down-regulated in response to priming and/or salinity compared to untreated, unstressed control. In untreated wheat embryo salt stress was accompanied by change in 129 proteins, most of which are involved in metabolism, energy, disease/defense, protein destination and storage functions. Ascorbate pretreatment prevents and counteracts the effects of salinity upon most of these proteins and changes specifically the abundance of 35 others proteins, most of which belonging to metabolism, protein destination and storage categories. Hierarchical clustering analysis revealed three major clusters of protein expression. These results may provide new insight into the molecular mechanisms underlying priming-induced salt tolerance in plants.

Biography

Azzedine Fercha is a lecturer in plant biochemistry at Abbes Laghrour University, Khenchela, Algeria. He graduated in plant physiology and biochemistry at Constantine-I University, Algeria. During his training he moved to La sapienzauniversità di-Roma, Italy, to exploit proteomics approaches for studying plant responses to abiotic stresses. He works as associate researcher in many research projects. Most of his research works have been focused on the physiological and molecular responses of crop plants to abiotic stresses, particularly to salt stress. He is co-author of more than 10 papers in international peer-reviewed journals.

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Development of a new cream added essential oil of lemon peel (*Citrus limon*)

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This study was conducted in order to enhance the lemon peel by using their essential oil as a natural agent for preservation and aromatization in cream in order to diversify the types of existing cream on the market. This essential oil was extracted by hydrodistillation, extraction yield was $0.89\pm 0.09\%$. The antioxidant activity of the essential oil was studied by the DPPH° test, this free radical has been effectively reduced, compared to vitamin E. The various tests on the formulation of the added essential oil of lemon creams were tested by developing three fresh creams with concentrations of 0.125%, 0.25% and 0.5%. The evaluation of the oxidative stability by Schaal test indicates that the fresh cream with essential oil of lemon is more resistant than the control opposite the forced oxidation. Sensory analysis show that the incorporation of essential oil in the cream, at concentrations of 0.125% and 0.25%, involves no significant difference ($p>0.05$) in terms of flavoring, and make products which are classified in same order than the control. Only the rate of incorporation of the essential oil of 0.5% significantly downgraded the product compared to the control in the third row, which has led to changes in smell and flavor while the texture, color and taste are unchanged. The principal component analysis showed a negative correlation between the levels of incorporation of the essential oil and the aroma of raw milk, and a positive correlation with the color yellow.

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