



## Cold stress in apple: the antioxidant defense mechanisms for the prediction of sunscald disorder during postharvest storage

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### Abstract:

Abiotic stresses, including low temperatures, severely affect yield and productivity of plants worldwide. Detection and signalling of low temperature is a complex process and dramatically alters the physiological, biochemical and morphological processes of plants. In addition of these effects in plants, cold stress promotes the development of a physiological disorder in fruits: sunscald. It affects the postharvest quality of apple (*Malus domestica* Borkh) leading to important economic losses worldwide. In this study, Granny Smith apple was harvested from homogenous trees. Five replicates of 100 apples per replicate per sunburn category were stored at 0-2 °C. Fruit classification was done according the following categories: 'Exposed' (Exp), 'Moderate' (Mod) and 'Severe' (Sev). As results, significant decrease in protein, SOD, MDHR and GR activities were signaled in the case of the severity category (Sev.) compared to the others of sunburn category (Mod and Exp). The activity of DHAR was the same in all the categories (Exp, Mod and Sev.) of the fruit during the storage period. As a conclusion, all the fruits related to the suburn category have almost no antioxidant metabolism and antioxidant enzymes to deal with post-harvest oxidative stress. These antioxidant systems have already been overwhelmed due to photo-oxidative stress in the field.



### Biography:

Besma Kahlaoui is a Dr in Plant physiology and has post-doctoral studies in the University of Talca, Chile. She has more than 20 papers in indexed journals. She contributed in the scientific and extension presentations and conferences, collaborative cooperation at national and international level and has been serving in editorial collaboration in different journals.

### Recent Publications:

1. Cold stress in apple: the antioxidant defense mechanisms for the prediction of sunscald disorder during postharvest storage