

Title Expression, activity and localization of pectin methylesterase in grape berry skin during ripening

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Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey. 256 pages.

Keyword Grape; pectin methylesterase; ripening

Abstract

Ripening of grape berry involves a series of complex physiologic changes in which senescing tissues undergo programmed changes in firmness, texture, coloration, flavour and susceptibility to microbial infection. Softening is accompanied by modifications in cell wall polymers that involve the co-ordinated and independent action of a range of cell wall-modifying enzymes such as pectin methyl esterase (PME). In the present work, expression of Vv PME, activity and cellular localization of this enzyme were studied in berry skin during ripening. Our results show that expression and activity were well correlated. Vv PME and PME activity decrease during the colour change period then increase at the end of ripening in relation with the loosening of skin cell-wall and the increase in susceptibility to pathogens. The subcellular localization of PME in developing skin berry was performed via immunogold electron microscopy technique and shows that few gold particles representing PME are found on the cell-wall near the cell-wall dismantled zones. This work will provide new insight for the regulation of structural changes in pectin chains and hemicellulose and its early may constituted a key event in the induction of grape softening.