

Title Heat treatments and expansin gene expression in strawberry fruit
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Abstract

Heat treatments have been applied in fruit postharvest technology for insect disinfestations, decay control, ripening delay and modification of fruit responses to other stresses. Heat treatment affects several aspects of fruit ripening, such as ethylene production and cell wall degradation probably through changes in gene expression and protein synthesis. In this paper, strawberries (*Fragaria × ananassa* Duch., cv Camarosa) at 50–75% red stage of ripening were heat-treated at 45 °C during 3 h in an air oven and then stored at 20 °C for 0, 4, 18, 24 and 48 h. Fruit firmness was determined and the expression of a set of expansin genes (*FaEXP1*, *FaEXP2*, *FaEXP4*, *FaEXP5* and *FaEXP6*) was analyzed. The firmness of treated fruit was higher than that of control fruit 24 h after treatment, though the differences disappeared after 48 h at 20 °C. The analysis by northern-blot indicated that heat treatments affected differently the expression of expansin genes. The expression of *FaEXP1*, *FaEXP2* and *FaEXP6* was lower in treated fruit during the following 24 h post-treatment. The lower expression of these expansin genes could contribute to delay softening after heat treatment.