

**Title** Physiological basis of sensitivity to enzymatic browning in ‘lettuce’, ‘escarole’ and ‘rocket salad’ when stored as fresh-cut products

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### **Abstract**

In fresh-cut leafy vegetables, the operation of cutting may stimulate enzymatic browning, with important commercial consequences. In this work, a number of physiological and biochemical parameters, including the activities of key enzymes involved in the metabolism of phenols (such as PAL, PPO, and PODs) and ascorbic acid (ASA), were measured in three species: lettuce (*Lactuca sativa* var. *capitata* L.), escarole (*Cichorium indivia* var. *latifolium*) and rocket salad (*Eruca sativa*), upon cold storage as fresh cuts. The first two species are quite sensitive to leaf browning, which does not affect rocket salad.

The resistance of rocket salad to browning was associated with a much higher ASA content and a decrease in this compound upon storage, compared to other species in which ASA remained either constant (lettuce) or increased (escarole). It is proposed that the resistance of rocket salad to this disorder, which markedly affects other leafy species, e.g., lettuce and escarole, is a result of the inhibition of PPO activity and/or the reduction of quinones to phenols, which may both be induced by ASA.