Title	Use of a simple mathematical model to evaluate dipping and MAP effects on aerobic respiration of minimally processed apples
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Abstract

A new general respiratory model based on the Michaelis–Menten type enzyme kinetics was tested to describe changes in aerobic respiration of minimally processed apple.

'Golden Delicious' apple slices, washed in distilled water or dipped in an antioxidant solution (1% ascorbic acid, 1% citric acid), were packed in multilayer pouches in passive or active modified atmosphere (respectively air and 90% N_2O, 5% CO_2, 5% O_2). During four days of storage at 4 °C, O_2 and CO_2 concentrations in the package headspace were monitored.

The proposed model successfully fitted the experimental data, adequately describing the aerobic respiration of apple slices.

Results suggest that both dipping treatment and active modified atmosphere affect the respiratory activity of the packed product. In particular, dipping reduced both the initial oxygen respiration rate (for about 10 h of storage) and the inhibitory effect that CO_2 had on O_2 consumption of packed product. The active modified atmosphere decreased the rate of oxygen consumption compared with passive MA, in particular at the beginning of storage.