

Title Design of plastic packages for minimally processed fruits  
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### **Abstract**

In this work the possibility of using a simple mathematical model for designing plastic film for fresh processed fruits packaging is addressed. The study was conducted by packaging three different fresh processed fruits: prickly pear, banana and kiwifruit; with two different commercially available films: a laminated PE/aluminum/PET film, and a co-extruded polyolefinic film, and storing the packages at 5 °C. The package headspace composition, in terms of oxygen and carbon dioxide concentration, was monitored for a period ranging between 4 and 12 days, depending on film type. A simple mathematical model was used for describing and predicting the respiration behavior of packed fresh processed fruits during storage. Results showed that despite its simplicity the proposed model satisfactorily describes and predicts the respiration behavior of investigated fresh processed fruits. It was also found that the predictive ability of the proposed model depends on both the permeability of the package and the fresh processed fruit packed. Packaging optimization was performed taking the film thickness as variable. Results suggest that the optimal film thickness strongly depends on packed fruits.