Abstract

PACK-in-MAP is a web-based (www.packinmap.com) software tool that helps in designing modified atmosphere packages for fresh and fresh-cut fruits and vegetables. The user-friendly online software determines the needs for packaging of fruits and vegetables in order to maintain the high quality and extend the shelf-life. The software contains a database on information on product respiration rate, optimum temperature, and optimum range of O2 and CO2 concentrations as well as permeability of different packaging materials, including micro-perforated films. The published information on MAP has been compiled and PACK-in-MAP software has been developed to establish which commercially available polymeric films would be most suitable for a particular produce. A case study will be presented to illustrate the use of the software to design a MAP for 1 kg of whole mango var. Nam dok mai packed in a box type package with total volume 1.55 x 10^{-3} m^3. Ethyl cellulose was found to be the best film with an area of 0.0221 m^2 yielding 6.5% O2 and 7.35% CO2 at steady state level. This gas composition was found to be within the optimal range for whole mango. The software was further used to simulate the package O2 and CO2 during storage, to know other alternative films and also to evaluate the impact of product and package variability on MAP.