Thesis Title	Modeling of Respiration and Modified Atmosphere Packaging of Mango "Nam Dok Mai"
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Abstract

Experiments for the determination of respiration rates of mango "Nam Dok Mai" were carried out in a closed system at various temperatures and percentage relative humidity. Changes of the O_2 and CO_2 concentrations in the closed system were recorded with time. It was found that Michaelis-Menten equation with uncompetitive inhibition kinetic fitted best with the experimental results. The temperature dependence of the constant of the respiration rate equation follows an Arrhenius relationship. Experimental results of the determination of the respiration rate of various percentage relative humidities showed that the difference in respiration rate was not significant. Experiment for the determination of permeability of Linear Low Density Polyethylene (LLDPE) were carried out at 13°C for various film thickness (10, 15, 20 and 25 μ m). LLDPE film was used in modified atmosphere packaging (MAP) experiments. MAP experiments were carried out at 13°C and 90% RH with various thicknesses of LLDPE film. A mathematical model that can describe the dynamic of O_2 and CO_2 concentrations inside the package of MAP of mango was formulated. The results of the model agreed well with the experimental results with the values of correlation coefficient (R^2) greater than 0.99. The model can be used for the selection of the packaging film appropriate for the MAP of mango "Nam Dok Mai"