

Abstract:

Moisture transfer during the storage mainly affects physical and chemical properties of pomegranates after harvest. A mathematical model was established to predict moisture transfer in this fruit. Fruits were stored at different packaging and storage conditions i.e. temperature, RH and packaging materials. The samples were stored for a period of six months. Mechanical properties such as penetration resistance and also chemical parameters i.e. pH, acidity, moisture content, sugar-acid ratio and colour were determined every two weeks. The relationship between moisture content and the above quality parameters was studied. Predictive mathematical model was verified by experimental results and good agreement was obtained. The model helped to find the most suitable storage conditions and packaging of pomegranate.

Nomenclature

C: cellophane

K: convective mass transfer (m.s-1)

M: variety of Malas of pomegranate

PE: Polyethylene

T: variety of Tabrizi of pomegranate

t: time (seconds)

W: wooden packaging

X: moisture content (g.Kg-1) of pomegranate at time

Xf: moisture content (g.Kg-1) at the ambient surrounding pomegranate

Xi: initial moisture content of pomegranate (g.Kg-1)

α : partition coefficient