BURHANI HARDWARE & FITTINGS

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Green Technology for life

Vacuum Impregnation to modify physico chemical properties and sensory attributes of apple cv. Jonagold (1-cm thick slices)

Raw Material	Composition of Vacuum Impregnation Solutions	Process Parameters	Effect
apple cv. Jonagold (1-cm thick slices)	ascorbic acid, citric acid, 4-hexylresorcinol, sodium chloride, calcium chloride, sodium lactate, calcium lactate and sucrose solutions	*p1 7 kPa* *t1 5 min* *t2 5 min*	effective inhibition of browning and softening of apple slices during storage by 1% ascorbic acid, 0.005% 4-hexylresorcinol, 0.5% calcium chloride, 20% sucrose in mpregnated solution

Flow Chart

apple cv. Jonagold (1-cm thick slices)

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Hydrodynamic Mechanism (HDM)
Vacuum Chamber at *p1= 7 kPa*
Time t1= 5 minutes

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ascorbic acid, citric acid, 4-hexylresorcinol, sodium chloride, calcium chloride, sodium lactate, calcium lactate and sucrose solutions

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Deformation Relaxation Phenomenon(DRP)
Vacuum Chamber at atmospheric pressure
Time t2= 5 minutes

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Result : effective inhibition of browning and softening of apple slices during storage by 1% ascorbic acid, 0.005% 4-hexylresorcinol, 0.5% calcium chloride, 20% sucrose in mpregnated solution

Vacuum Impregnation Setup

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Result:

Effective inhibition of browning and softening of apple slices during storage by 1% ascorbic acid, 0.005% 4-hexylresorcinol, 0.5% calcium chloride, 20% sucrose in mpregnated solution. During the impregnation of pears the authors used an isotonic solution containing enzymatic browning inhibitors (ascorbate; 4-hexylresorcinol; EDTA; citrate) with or without an addition of calcium lactate. The most effective limitation of adverse changes in color were observed as a result of vacuum impregnation of pears with a solution containing ascorbate and an addition of lactate. They also recorded an extended shelf life of the minimally processed product to 20 days and inhibition of changes in the mechanical properties of tissue as well as microbial growth. The effect of enzymatic browning inhibition during storage was also observed by Biegańska-Marecik and Czapski (2007) when applying a solution containing ascorbic acid; 4-hexylresorcinol; calcium chloride and sucrose in vacuum impregnation of apple slices.

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