



vacuum impregnation to modify health-promoting properties of pieces of guava and papaya

Raw Material	Composition of Vacuum Impregnation Solutions	Process Parameters	Effect
pieces of guava and papaya	papaya and guava fruit juices (1—Extracted by blending with water, ratio 1:1; 2, 3—Extracted fruit juices containing 15° and 30° Brix, respectively) with an addition of Lactobacillus casei microorganisms	p1 5 kPa t1 5, 10, 15 min t2 10 min	after impregnation: 108 to 109 CFU/g Lactobacillus casei, after drying at 40 °C for 36 h: 107 CFU/g Lactobacillus casei in impregnated fruits

Flow Chart

Pieces of guava and papaya Introduced into Vacuum Chamber

Hydrodynamic Mechanism (HDM) Vacuum Chamber at – 5 KPA Time 1 – 5,10,15 minutes

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Deformation Relaxation Phenomenon(DRP) Vacuum Chamber at atmospheric pressure Time 2 – 10 Minutes

Result: after impregnation: 108 to 109 CFU/g Lactobacillus casei, after drying at 40 °C for 36 h: 107 CFU/g Lactobacillus casei in impregnated fruits

Vacuum Impregnation Setup



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Result:

After impregnation: 108 to 109 CFU/g Lactobacillus casei, after drying at 40 °C for 36 h: 107 CFU/g Lactobacillus casei in impregnated fruits. Impregnation facilitated the effective introduction of probiotics to apple tissue, providing the content of microorganisms in the product after convection drying (air drying) at 106–107 CFU/g. This is equivalent to the level of bacteria in dairy products. Similarly, Krasaekoopt and Suthanwong (2008) obtained the level of microorganisms in fruit after air drying at 107 CFU/g during the vacuum impregnation of guava and papaya fruits using *L. casei, which makes this product probiotic food*

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