

## vacuum impregnation to modify health-promoting properties of endive, cauliflower, broccoli, carrots

Raw Material	Composition of Vacuum Impregnation Solutions	Process Parameters	Effect
endive, cauliflower, broccoli, carrots	vacuum impregnation reference solution—aqueous sucrose solutions of the same <i>aw</i> as each of the four raw materials; Aloe vera aqueous solution with an addition of 5 and 30 g/L of aloe vera powder (powder dispersed in water), respectively	$p1$ 50 kPa $t1$ 10 min $t2$ 10 min	after vacuum impregnation: incorporation of up to 7 g of Aloe vera in 100 g (dry matter) in broccoli, about 4 g in cauliflower and endive, and about 3 g in carrots

### Flow Chart

endive, cauliflower, broccoli, carrots  
Introduced into Vacuum Chamber

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Hydrodynamic Mechanism (HDM)  
Vacuum Chamber at - 50 KPA  
Time 1( $t1$ ) =10 minutes

↓  
vacuum impregnation reference solution—aqueous sucrose solutions of the same *aw* as each of the four raw materials; Aloe vera aqueous solution with an addition of 5 and 30 g/L of aloe vera powder (powder dispersed in water), respectively

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Deformation Relaxation Phenomenon(DRP)  
Vacuum Chamber at atmospheric pressure  
Time 2( $t2$ )= 10 minutes

↓  
Result : after vacuum impregnation:  
incorporation of up to 7 g of Aloe vera in 100 g (dry matter) in broccoli, about 4 g in cauliflower and endive, and about 3 g in carrots

### Vacuum Impregnation Setup



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CATALOG**

### **Result:**

After vacuum impregnation: incorporation of up to 7 g of Aloe vera in 100 g (dry matter) in broccoli, about 4 g in cauliflower and endive, and about 3 g in carrots. Most frequently, the aim of such studies was to determine the potential enrichment using vacuum impregnation, select a technique for product preservation, as well as to determine its effect on contents of introduced compounds. Sanzana et al. (2011) tested the potential for the production of functional food by vacuum impregnation of broccoli, cauliflower, endive and carrot with a solution supplemented with aloe powder (*Aloe barbadensis*, Terry laboratories, Malbourne, Australia) at 30 g/L. In a study by Sanzana et al. (2011), apart from the introduction of aloe in the production of functional food, the effect of applied impregnation on the rate of respiration processes was determined in raw materials, which may be a factor extending shelf life of enriched vegetables.

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