**Effect of vacuum impregnation time on potentially healthy properties of minimally processed strawberries impregnated by mild vacuum**

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ABSTRACT

The vacuum impregnation process is a possible alternative to recover bioactive compounds that can be lost during minimal processing of fresh-cut strawberries. This technology allows the introduction of different elements into a porous food matrix. The present work aims to determine the optimum vacuum (tv) and relaxation (tr) times, necessary to maintain and/or improve potentially healthyattributes of fresh-cut strawberries vacuum impregnated on natural strawberry juice with the addition of 1% of ascorbic acid and 1% of citric acid. It was determined the relative percentage variation (∆%i), with respect to fresh-cut fruit without treatment, for total anthocyanin content (TA), antioxidant capacity (AC), total phenolic content (TPC), vitamin C (VC) and specific anthocyanins of the profile (pelargonidin 3-O-glucoside=P3G, cyanidin 3-O-glucoside= C3G and pelargonidin 3-O-rutinoside= P3R) on the day of treatment (i=0) and after 7 d of storage at 1.5°C (i=7). Predictive models were obtained for ∆%TA0, ∆%AC0, ∆%TPC0, ∆%VC0 and ∆%VC7. With high tv values, ∆%TA0, ∆%AC0, ∆%VC0, ∆%VC7 increased (maximum 26,3; 26,9;134,5 and 107,2% respectively), that responses resulted function of tv. ∆%TPC0 was affected by tv and tr, and reached the maximum increase (29%) with tv= 12 and tr=12 min. Changes in ∆%TA7, ∆%AC7, ∆%TPC7, ∆%P3Gi, ∆%C3Gi and ∆%P3Ri were not function of the process variables but increased in all cases. The average increments obtained for each response were: TA7=19,44%. AC7=5,5%; TPC7=3,5%; P3G0 =13,8%, P3G7=4,8%; C3G0=11,8% C3G7=11,5%; P3R0= 22,3% and P3R7=11,9 %. The predictive models allowed to estimate the appropriate conditions of tv (6,52 min) and tr (1,14 min) to obtain minimally processed strawberries with improved healthyattributes, maximizing TA, AC, TPC and VC.

Key words: vacuum impregnation, vacuum time, relaxation time, healthy