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EFFECT OF PROCESSING AND STORAGE ON NUTRITIONAL AND FUNCTIONAL QUALITY OF STRAWBERRY

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Being very perishable, strawberries require preservation, both as fresh or processed foods. This study aims at the identification of health-important biomarkers and evaluation of the effects of processing and storage on nutritional and functional quality of fresh-cut strawberry. The effect of cutting and package type on the antioxidant activity, total phenolics, total anthocyanins and relevant individual compounds content was studied and the related changes determined. Strawberries were cut vertically into two or four wedges, depending on fruit size, and packaged in 150 g clamshells or 50 g filmed packages, stored at 5 °C, and assessed for and nutritional and functional composition on days 0, 1, 2, 5 and 7 of storage. Total antioxidant activity was assessed by the ABTS method, total phenolics by Folin Ciocalteu's method and phenolic compounds and anthocyanins were analyzed by high performance liquid chromatography (HPLC-DAD). There was a significant effect of processing and package type on total phenolic compounds with processed strawberries stored in clamshells showing the highest values from day 2 to day 5 of storage. Total anthocyanins content increased in the first 2 days of storage and remained relatively constant throughout day 2 to 7 of storage. There was a significant effect of package type on processed strawberries anthocyanins content with whole strawberries stored in clamshells showing the highest values. Cyanidine-3-glucoside content was significantly affected by processing with processed strawberries showing lower cyanidine-3-glucoside content throughout storage in comparison with whole strawberries. Catechin concentration increased in the first day of storage of whole strawberries while decreasing in processed ones. Whole strawberries in both package types showed higher values of epicatechin content than processed strawberries. Rutin concentration was affected by processing and package type with whole strawberries stored in filmed packages showing the highest values during storage. Processing also affected the concentration of ellagic acid.