

Use of High Hydrostatic Pressure as an Alternative Preservation Method for Fresh Dates, Rutab

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Abstract : The effects of high hydrostatic pressure (HHP) treatments on microbial contamination, chemical and physical properties of fresh dates (Rutab stage) were studied. Khalas, Barhi and Hilali cultivars were treated at 200, 250, 300 and 350 MPa using HHP research apparatus. The objective of such treatments was to preserve fresh dates without adversely affecting its properties. Treating fresh dates at 300 MPa for 5 minutes at 40°C reduced microbial contamination in about 2.5 log cycles. Applying 250 MPa was enough to control Rutab contamination with molds, yeasts, and coliforms. Both treatments were enough to reduce Rutab microbial contamination to acceptable levels. HHP caused no significant effect on Rutab chemical properties (moisture, sugars, protein, pectin and acidity). However, a slight decrease in moisture contents due to HHP was observed. Rutab lightness (L*) significantly decreased due to the application of HHP. Only Rutab treated at 300 MPa gave lower redness (a*) values compared with an untreated sample. The effect of 300 MPa on increasing yellowness (b*) was observed for Barhi and Hilali but decreasing for Khalas. The hardness of all Rutab cultivars significantly decreased as a result of HHP application. In fact, the pressure applied at 300 MPa had an adverse effect on texture, which may limit its suitability for use in Rutab preservation.

Keywords : high hydrostatic pressure, fresh dates (Rutab), microbial contamination, color, texture

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