

Cryogenic Freezing of Fresh Soft Dates

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Abstract. Seven cultivars of widely consumed fresh soft dates, at two stages of maturity, i.e., Rutab (fully ripe) and Munassif (half ripe), have been cryogenically frozen using liquid nitrogen. The cultivars were: Sukkari, Nabt Sultan, Nabt Saif, Maneefi, Sillaj, Reziz, and Khalas, all purchased fresh from the local market during the 1989 date production season. The experimental time-temperature data of the fresh soft dates during the cryogenic freezing process were generated and compared with the conventional freezing time-temperature data. The initial freezing points of the date cultivars were in the range -16 to -18°C . Quality attributes of the thawed dates kept frozen at -50°C for 12 months were compared with their fresh cultivars counterparts. Significant differences ($P < 0.05$) were detected by sensory panelists, in color, texture, flavor, and overall acceptability of most cryogenically frozen cultivars at their Munassif stage of maturity. Panelists were not able to detect significant differences ($P < 0.05$) while scoring for the overall acceptability of all cultivars at their Rutab stage of maturity, except Nabt Saif. Cryogenically frozen Nabt Saif cultivar at the Munassif stage of maturity was not significantly different ($P < 0.05$) from its fresh one in color, texture, flavor, and overall acceptability.