**Abstract**

Moroccan dates *Phoenix dactylifera* L. cv. Boufeggous were treated with 0.6, 0.9 and 1.8 kGy of gamma irradiation and subsequently stored at ambient temperatures. Chemical properties were evaluated for irradiated and non-irradiated dates immediately after the treatment, 4 and 8 months of storage. No significant changes were noted in dry matter, total lipid and protein contents. Irradiation at higher doses (0.9 and 1.8 kGy) increased titratable acidity immediately after the treatment. After 8 months of storage, the treatment increased ash and decreased amino acids. Irradiation at 0.9 kGy significantly increased glucose and total sugars contents after 8 months of storage. Fructose amounts were, however, not affected by the treatment. The increase in storage time resulted in a decrease in starch contents in both irradiated and non-irradiated dates. Pectic substances (water-, oxalate- and hydrochloride-soluble fractions) were significantly reduced by the treatment with a 27% decrease in water-soluble pectins at a dose of 1.8 kGy at the end of the storage time.