Effect of modified atmosphere packaging on the physiological and functional characteristics of Spanish jujube (*Ziziphus jujuba* Mill.) cv 'Phoenix' during cold storage

J. Reche, M. E. García-Pastor, D. Valero, F. Hernández, M. S. Almansa, P. Legua and A. Amorós

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Abstract

Jujube fruits cv 'Phoenix' were stored in modified atmosphere packaging (MAP) using a polyester (12 μm)-polypropylene (60 μm) film at 5 °C and 90% RH during 49 days. Jujube fruits stored without packaging and in normal air and same temperature and RH served as control. The atmosphere composition at the steady state was at 35 days with 14.50 kPa O_2 and 3.86 kPa CO_2. The atmosphere packaging showed an almost zero amount of ethylene during all storage days. The jujubes at MAP have been very effective as they presented the same appearance throughout the 49 days of storage. On the other hand, the fruits in control showed a wrinkled and non-commercial appearance at day 21. Treatment with MAP caused a significant delay in the ripening of the fruit after harvest. It caused less weight loss, more firmer and more intense color. Improved total carotenoids, total phenols, hydrophilic-total antioxidant activity (H-TAA), lipophilic-total antioxidant activity (L-TAA). Meanwhile, the maturity index (MI) was reduced compared with control jujubes.