

Title Partial vacuum extends the longevity of primed bitter gourd seeds by enhancing their anti-oxidative activities during storage

Author Y.M. Yeh, K.Y. Chiu, C.L. Chen and J.M. Sung

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Abstract

This study evaluates the effects of partial vacuum storage on longevity and anti-oxidative responses of primed bitter gourd (*Momordica charantia* L.) seeds. Priming was achieved by mixing the seeds with moist vermiculite 25 °C for 36 h, followed by air-drying to the original moisture level. Primed seeds were vacuum-packed and stored at 25 °C for up to 12 months. Priming improved seed germination, reduced lipid peroxidation and enhanced anti-oxidative activity prior to storage. However, primed seeds accumulated more total peroxide than non-primed control after 12 months non-vacuum storage, and this led to a marked decrease in seed longevity. Increased total peroxide levels were associated with decreased percentage of 2,2-azinobis(3-ethylbenzothiazoline-6-sulfonate) (ABTS) radical inhibition. Partial vacuum storage proved useful in extending the longevity of primed seeds for up to 12 months. Improved longevity was related to enhanced anti-oxidative activity that minimized the accumulation of total peroxide during long-term storage.