

Ripening behavior, storage and quality of 'Alphonso' mangoes as influenced by 1-methyl cyclopropene

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Abstract

Investigations were carried out, for three consecutive years (2006-08), with an objective to test the efficacy of 1-methyl cyclopropene (1-MCP) in arresting the ripening and prolonging the storage and shelf life of 'Alphonso' mango fruit to suit export by sea transportation from India. After harvesting at physiological maturity, followed by pre-cooling at 13°C, fruit were exposed to vapors of 1-MCP at 70 mg/m³ (1000 ppb) for 18 hrs in air tight (plastic) treatment chamber. The treated and untreated fruits were then transferred to walk-in cooler for storage at 13±1°C, for different intervals (14, 21, and 28 days), followed by ripening at ambient temperature. Effect of 1-MCP on ripening pattern of fruits examined at six difference stages (viz. unripe, turning pale green, ¼ ripe, ½ ripe, full ripe and decaying) indicated that 1-MCP treatment significantly arrested the ripening by 8 days and prolonged the subsequent stages by 9, 10, 12, 12 and 13 days, respectively, over untreated control fruit. The fruit quality assessed at different intervals viz. after 14, 21 and 28 days of storage and shelf life behavior at two stages (0 and 5 days) after storage in terms of TSS, Acidity, total sugar, reducing sugar and an organoleptic ratings, were found to improve by 1-MCP treatment with 21 days storage plus 5 days shelf life (17.93°B, 0.31%, 14.15%, 4.3%, 6.78) and 28 days storage with zero days shelf life (17.24°B, 0.29%, 14.53, 4.63%, 6.45) over control (16.93°B, 0.38%, 14.02, 4.04%, 6.33) with significant reduction in occurrence of spongy tissue (physiological disorder) from 25.07% in control to 9.45 to 12.34 % in both these 1-MCP treatments, respectively.