

Title Activity of cell wall softening enzymes and its relation to fruit firmness during chemical regulated ripening of tomato (*Solanum Lycopersicum L.*)

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Abstract

Studies were conducted to find out the influence of six postharvest chemical treatments (CaCl₂ 1 and 2%; GA₃ 75 and 150 ppm; Spermine 100 and 200 ppm; Ethanol 2 and 4 ml kg⁻¹ fruit; menadione 100 and 200 ppm; Ethrel 250 and 500 ppm) on the enzyme activity, fruit firmness and shelf life of cv. PKM-1 Fruits at breaker stage after chemical treatments were studied for their postharvest ripening behaviour at ambient temperatures in open ventilated plastic trays. The activity of cell wall softening enzymes viz. polygalacturonase (PG) and pectin methyl esterase (PME) increased gradually during storage reaching its peak by ninth day after storage followed by a decline towards the end of storage while the fruit firmness gradually decreased during storage. Though the pattern of changes observed were similar to for all the treatments including untreated control, the enzyme activity was relatively low and the rate of decrease in fruit firmness was much lower in treated fruits than those untreated. Among the chemical treatments spermine and ethanol were found more effective in delaying softening by inhibiting the activity of both the enzymes during ripening and the shelflife of tomato could be extended by 10-12 days over the untreated control with the postharvest application of these two chemicals.