

**Title** 1-Methylcyclopropene (1-MCP) delays senescence, maintains quality and reduces browning of non-climacteric eggplant (*Solanum melongena* L.) fruit

**Author** Juan F. Massoloa, Analía Concellóna, Alicia R. Chavesa and Ariel R. Vicentea

**Citation** Postharvest Biology and Technology, Volume 59, Issue 1, January 2011, Pages 10-15

**Keywords** Ethylene; Storage; Refrigeration; Polyphenol oxidase; Phenylalanine ammonia-lyase; Phenolics

### Abstract

Ethylene action can be counteracted by 1-methylcyclopropene (1-MCP), which has been used during postharvest storage to maintain quality. In this work, we evaluated the effect of 1-MCP treatments on eggplant quality and phenolic metabolism during refrigerated storage. Eggplants (cv. Lucía) were harvested at commercial maturity, treated with 1-MCP (1  $\mu\text{L/L}$ , 12 h at 20 °C), stored at 10 °C for 21 d and subsequently held at 20 °C for 2 d. Corresponding controls were stored at 10 °C and then transferred to 20 °C for 2 d. During storage calyx color, damage and chlorophyll content, fruit weight loss and firmness, pulp sugar content, acidity, browning and total phenolics were measured. In addition, polyphenol oxidase (PPO), pyrogallol peroxidase (POD), and phenylalanine ammonia-lyase (PAL) activities were evaluated. Fruit calyces showed reduced damage and remained greener in 1-MCP treated than in control fruit. 1-MCP treated eggplants showed lower weight loss. Pulp browning was clearly prevented as a consequence of 1-MCP exposure, and this was associated with delayed senescence, lower accumulation of total phenolics and reduced activity of PAL. The activity of the enzymes PPO and POD involved in the oxidation of phenolics compounds was also decreased in 1-MCP treated fruit. Results suggest that 1-MCP treatments delay senescence, prevent browning and are beneficial to complement low temperature storage and maintain quality of non-climacteric eggplant fruit.