

Abstract

The effect of the ethylene antagonist, 1-MCP, on intact and minimally processed melons was investigated. Treatment with 1-MCP was ineffective in delaying senescence and countering the effect of ethylene in whole and cut melons. The inability of 1-MCP to delay ripening and senescence could be ascribed to the accumulation of high levels of ethylene and CO₂ in the central cavity of the fruit. Fruit a third and two third the size of mature fruit contained hardly any ethylene in their central cavities. Mature unripe and ripe fruit contained high levels of ethylene, indicating that ethylene accumulated in the fruit cavity during the last phases of development to maturity.

The ethylene binding capacity of immature fruit increased during development. However, mature fruit showed very little ethylene binding capacity. These results indicate that ethylene accumulated in the central cavity during the later stages of maturation, resulting in an almost complete saturation of the binding sites. Treatment with 1-MCP at this stage was therefore ineffective in countering the effect of ethylene.

reatment with AOA and AVG, inhibitors of ethylene synthesis, resulted in a delay in fruit development and ripening. Although the ethylene binding sites were fully occupied by ethylene, treatment with these inhibitors inhibited the autocatalytic stimulation of ethylene synthesis and in that way delayed ethylene-induced ripening and senescence.