Abstract

The effect that 1-methylcyclopropene (1-MCP) have on ethylene production in climacteric fruits is now widely described, 1-MCP reduces ethylene production and prevent scald disorder in the whole fruit. However and in spite of this interesting result for scald prevention, very little is known about the specific effects that 1-MCP might have on skin tissue. The aim of this work was to better understand these effects in Golden Smoothee apple skin. The study was focused on ACC metabolism and was carried out to determine how 1-MCP treatment affects ethylene production, 1-aminocyclopropane-1-carboxylic acid (ACC) levels, 1-malonylamino-cyclopropane-1-carboxilic acid (MACC) levels, ACC synthase (ACS) and ACC oxidase (ACO) activities in both skin and pulp tissue. Changes in ACC metabolism were followed in fruits stored in air and removed after 7, 15, 30 and 90 days of storage. As expected, 1-MCP treated fruits exhibited lower ethylene production than control fruits. Only slight differences in ACC levels and ACCS activity were found between pulp and skin. In contrast, higher ACO activity was found in skin when compared to pulp. A high increase in MACC levels was also found during storage especially in skin tissue. Collectively these results showed that skin and pulp apple tissues differentially respond to the 1-MCP treatment and that MACC might be an interesting marker of 1-MCP treatment in this kind of fruit.