

Effects of 1-MCP and DPA on the changes in sesquiterpene and total phenol contents associated with superficial browning in ripe mango skins

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Abstract

Mango (*Mangifera indica* L.) fruit is highly susceptible to superficial scald, which manifests as brown and/or black patches on the fruit skin. In apples and pears, a similar symptom is thought to be the result of cell damage induced by the accumulation of volatile sesquiterpenes such as (*E,E*)- α -farnesene (AF) and conjugated trienes (CTs), an oxidized form of AF. In this study, sesquiterpenes in ripe mango fruit were extracted from the cuticle layers using hexane, and AF and CTs were measured using specific UV absorption (232 nm and 269 nm for AF and CTs, respectively). The browning score and the CTs/AF ratio were highest and lowest in fruits treated with DPA (diphenylamine) and 1-MCP (1-methylcyclopropene), respectively. In some other fruits, surface browning is often associated with changes in the content of phenolic substances. Total phenol content in the yellow area of ripe mango skin was higher than that in the brown area, regardless of treatment. The relationships between changes in the CTs/AF ratio in hexane extract, total phenol content in the peel and the severity of browning are discussed.