

# Bacterial volatile mediated suppression of postharvest anthracnose and quality enhancement in mango

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## Abstract

Anthraco­nose disease incited by *Colletotrichum gloeosporioides* reduces the yield and market-quality of mangoes worldwide. Previous studies have indicated the potential of diverse antimicrobial volatile organic compounds emitted by the endophytic *Pseudomonas putida* BP25 for plant disease suppression. In the present study, we have explored native-volatiles of *Pseudomonas putida* BP25 and a synthetic-volatile, 2-ethyl-5-methylpyrazine, earlier identified in volatilo­me of *Pseudomonas putida* BP25 for reducing anthracnose in mango cultivar, *Amrapali*. The bacterial volatile compounds displayed fungistatic effects on the mycelial growth of *Colletotrichum gloeosporioides* *in vitro*. *In planta* prophylactic fumigation of mangoes with native-volatiles or the bacterial origin synthetic 2-ethyl-5-methylpyrazine for 24 h at 25 °C showed a reduction of anthracnose severity (>76 % reduction over mock) on fruit. Additionally, physicochemical qualities such as total-soluble solids, total-phenols, total-proline, total-carotenoid, total-flavonoid, and fruit-firmness were increased in fumigated fruit as compared to untreated mangoes. Anthracnose suppression coupled with the fruit quality enhancement by bacterial volatiles and synthetic 2-ethyl-5-methylpyrazine presents a new opportunity for postharvest management of mango during the storage, transit, and trade.