

Abstract

Amistar is a systemic fungicide registered for field application to control anthracnose disease on mango. Amistar (azoxystrobin) is a synthetic analogue of a naturally occurring fungal metabolite (strobilurin) found in wild mushroom (*Strobilurus tenacellus*). The present study aimed to determine whether there was variation in resistance to postharvest anthracnose disease in several cultivars of Australian mango. Mango fruits were harvested at commercial maturity from the Gin Gin, Bundaberg and Gatton areas of Queensland where commercial Amistar spray programmes were in place. The harvested fruits were surface-sterilised with ethanol and then inoculated with *Colletotrichum gloeosporioides* (9.5×10^5 spores/ml). Disease incidence and severity (artificial and natural) were measured daily during storage at 22°C. The varieties Calypso, Honey Cold, Kensington Pride, Celebration and Brooks were resistant, Kent and R2E2 were susceptible, and Nam Doc Mai was highly susceptible to postharvest anthracnose disease. Fruit peel was subjected to homogenisation and extraction with organic solvents, and extracts run on TLC plates. Upon subsequent bioassay using *C. gloeosporioides* as a test fungus, inhibition zones were observed at different R_f positions. However, the strongest inhibition zone was found at R_f 0.2 in all the resistant varieties. Initially, it was assumed that this was a constitutive antifungal compound that conferred resistance, but azoxystrobin alone also produced an inhibition zone on the TLC plate at the same R_f position. This provides strong evidence that the inhibition zone was due to residues of azoxystrobin and that this compound, and not constitutive antifungal compound(s), was responsible for conferring resistance.