

Interaction of *Colletotrichum gloeosporioides*, epiphytic microorganisms and nutrients on avocado leaves and fruit

[A.M. Stirling](#), A.C. Hayward and K.G. Pegg

Abstract

The effect of nutrients on *Colletotrichum gloeosporioides*, the cause of avocado anthracnose, and on microorganisms that are antagonistic to the pathogen was studied in a series of laboratory and field experiments. Avocado (cv. Hass) leaves sprayed once with molasses, urea and yeast extract, either alone or in combination, were sampled after 7 and 28 days and populations of bacteria, yeasts and filamentous fungi on the leaf surface were determined. Urea had little effect on the number of microorganisms, but molasses increased microbial populations by 10- to 100-fold. When the antagonistic yeasts *Cryptococcus* sp. and *Aureobasidium* sp. were sprayed onto avocado leaves in the field with molasses, they maintained significantly higher populations than in the absence of molasses. However, molasses did not enhance populations of selected antagonistic bacteria (e.g. *Pseudomonas fluorescens*, *Pantoea* sp. and *Bacillus pumilus*) when sprayed on leaves. Molasses increased the saprophytic growth of *C. gloeosporioides* on detached avocado fruit and these fruit developed more disease than fruit treated with water alone. Detached avocado fruit treated with antagonistic yeasts, *Cryptococcus* sp., *Aureobasidium* sp. or pink yeast 734 in the presence or absence of molasses had fewer and smaller lesions than fruit without added yeasts. Regular molasses sprays applied to - avocado trees in the field over an 8-month period did not increase anthracnose in fruit.

Keywords: antagonists, postharvest, yeasts, bacteria, molasses

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