

Abstract

Antifungal activity against the pathogen, *Botrytis cinerea*, and a bioassay organism, *Cladosporium cladosporioides*, declined with advancing strawberry fruit maturity as shown by thin layer chromatography (TLC) bioassays. Preformed antifungal activity was also present in flower tissue. The fall in fruit antifungal compounds was correlated with a decline in natural disease resistance (NDR) against *B. cinerea* in planta. Crude extracts of green stage I fruit (7 days after anthesis) contained at least two preformed antifungal compounds ($R_f=0.44$ and 0.37) that were not present in white and red stage fruit. These compounds were shown with TLC reagent sprays to be neither phenolics nor alkaloids. Positive reactions to Ehrlich's reagent suggested that $R_f=0.37$ was a terpene. Most antifungal activity was found in the achenes of green stage I fruit. However, antifungal activity was found in all tissue types (viz. pith, cortex, epidermis) of green stage I fruit. TLC bioassays revealed that all fruit stages yielded antifungal activity at the origin ($R_f=0.00$). The approximate area of fungal inhibition at the origin in green stage I fruit extracts was 1.87- and 1.73-fold greater than in white and red stages, respectively. TLC reagent sprays showed that the antifungal compound(s) at origin included phenolics. This observation is consistent with previous reports that phenolic compounds in strawberry fruit are inhibitory to *B. cinerea*.