

Abstract

The potential of volatile substances emitted by 'Isabella' grapes (*Vitis labrusca*) to control gray mold (*Botrytis cinerea*) on 'Hayward' kiwifruit (*Actinidia deliciosa*) was studied. The closed Mariotte system was used as a bioassay method to analyze quantitatively the biological action of these volatiles on *B. cinerea* growth. In vivo experiments compared the effects of volatiles from 'Isabella' grapes versus volatiles from 'Roditis' grapes (*V. vinifera*) and a *B. cinerea* control on the growth and disease development of *B. cinerea* on kiwifruit. The effect of the volatiles on the growth of *B. cinerea* was tested at various temperatures and times of inoculation after the wounding of kiwifruit, as well as using various weights and developmental stages of the grapes. The 'Isabella' volatiles limited the incidence of infection by reducing both the inoculum density and the activity of the pathogen. The weight and developmental stage of the grapes were important in the degree of inhibitory action of the 'Isabella' volatiles. The inhibitory action was more pronounced at 21°C irrespective of the inoculation time after wounding. The study shows the potential for successful biological control of *B. cinerea* on kiwifruit by volatiles from 'Isabella' grapes.