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Abstract

Fungi are important natural pathogens of arthropod pests and are successfully used as biocontrol agents in various crops. In addition to colonizing arthropods, evidence has accumulated that some entomopathogenic fungi like *Beauveria bassiana* can endophytically colonize a wide array of plant species. However, only limited information is currently available on the endophytic colonization of grapevines with *B. bassiana* and whether the fungus still maintains its pathogenic habit against insect pests.

Greenhouse and field experiments were conducted to optimize endophytic establishment of the entomopathogenic fungus *B. bassiana* in younger, potted plants and mature grapevine plants in the vineyard. We used two different commercialized *B. bassiana* strains, applied either as conidial suspensions (ATCC 74040 and GHA) or as a formulated product (Naturalis®, strain ATCC 74040) on grapevine leaves. The potential of endophytic *B. bassiana* to provide protection against putative target pest insects like the vine mealybug *Planococcus ficus* was assessed in a bioassay using surface sterilized leaves. Endophytic survival of *B. bassiana* inside leaf tissues of seven-week-old potted plants was evident for at least 21 days after inoculation, irrespective of the inoculum used. Endophytic *B. bassiana* reduces infestation rate and growth of *P. ficus*. In the vineyard *B. bassiana* was detected as