

Title Control of *Penicillium expansum* and patulin accumulation on apples by quercetin and umbelliferone

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Abstract

The effectiveness of seven phenolic compounds (esculetin, ferulic acid, quercetin, resveratrol, scopoletin, scoparone and umbelliferone) in controlling *Penicillium expansum* growth and patulin accumulation was evaluated by both in vitro and in vivo studies. The in vitro screening showed that quercetin and umbelliferone were the most effective compounds in controlling *Penicillium* growth and patulin accumulation, respectively. Quercetin and umbelliferone, resulted to be effective also in the in vivo screening, were further tested (alone and in combination) on Granny Smith and Golden Delicious apples. The efficacy in controlling *Penicillium* growth was better expressed on Golden Delicious than on Granny Smith apples, with quercetin providing a better control of both incidence of decay and disease severity as compared to umbelliferone. Both compounds exerted a considerable control of patulin accumulation on the two apple cultivars. Quercetin and umbelliferone can be considered as natural compounds to be used as alternative strategy to chemical fungicides in postharvest control of *P. expansum* infections on apples.

<http://www.springerlink.com/content/g6471k7k83814328/fulltext.pdf>