

Title Current status of development of biological control products for postharvest use in Europe

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Abstract

In Europe, the pome fruit growing industry is currently confronted with residue restrictions imposed by marketing chains as retail companies and import countries. Next to a high quality product also a limited residue loading on the fruit surface is requested. Particularly the number of active ingredients on the fruit surface is restricted, and also some standard applied plant protection products (PPP) are prohibited. The chemical fungicides applied shortly before harvest towards fruit rot decay during storage are frequently detected after analytical analysis. Therefore, these chemicals are, at the moment, in the focus of interest of the industry. To this end, research concerning alternative approaches has exploded in the past years. The European government is also stimulating this kind of research indirectly as each member state is demanded to adopt a national action plan to reduce risks and impacts of pesticide use on human health and the environment (Directive 2009/128/EC). In collaboration with the plant protection industry research was done to investigate non-chemical alternatives for postharvest disease control. Several yeast strains were selected and formulated to verify their potential as a biological control agent (BCA). In order to enhance the efficacy, the supplementary effect of natural products and physical treatments is also implemented in this study. As for the application technique in general, a postharvest treatment by dipping, which is a more standardized application where all parameters can be quantified and controlled, is selected. In addition to the fruit surface, also wounds, caused by picking and transport, will be covered resulting in a higher biological efficacy towards key wound pathogens as *Botrytis cinerea* and *Penicillium* spp. Depending on the type of BCA some promising results were obtained. Nevertheless, more research under practical conditions is requested to implement these non-chemical products into an integrated system.