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O03.009 Screening of microbial antagonists for the development of commercial biocontrol products against plant pathogens

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Screening programs of antagonists for control of plant pathogens often focus on the testing of antagonistic properties *in vitro*, in bioassays and subsequently in crops. However, antagonists must fulfill many more criteria if a commercial application is considered. Within the EU-project ENDURE, various selection criteria have been ranked in a stepwise approach to exclude unwanted candidates in early screening steps using inexpensive tests (Kohl *et al.*, 2011. *Biological Control* 57: 1-12). Consequently, fewer candidates have to be tested in later screening steps when more expensive assessments have to be done. Targeted crops and diseases and the resulting market size are evaluated during the first step. To obtain candidates with the relevant ecological characteristics, the origin of antagonists and isolation techniques are carefully chosen. Candidate antagonists are assessed in rapid tests to exclude those which, for example, produce not sufficient inoculum or show no cold-tolerance. After this first high throughput screening, the remaining isolates are identified and information is collected in relevant data bases. Species with unwanted toxicological or ecological profiles are excluded, but also patent and marketing aspects are reviewed. The antagonistic potential of the pre-selected candidates is subsequently tested on pathogen-inoculated plants. Mass production properties are evaluated in small fermenters in parallel. Tests in crops follow only for a small set of selected antagonists. Feasibility of mass production, formulation and shelf life are tested again in parallel. Consequently, only antagonists which fulfill the major criteria for commercial use will be assessed in field experiments using already suitable pilot-formulation.

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