DialogProTec

Protocol on screening for fungicidal activity against important plant pathogens

Searching for sustainable alternatives to copper-based fungicides

Copper-based plant protection products are widely used in conventional as well as organic agriculture to control a broad range of plant diseases, even though their long-term application leads to accumulation in soils, which can negatively affect soil fertility. Reduction of copper-based fungicides with the final aim of phasing out has a high priority in European policy as well as in organic agriculture.

State-of-the Art

Natural products by plants or microorganisms might provide effective, sustainable, and environmentally-friendly alternatives. Several alternative sustainable products have to be brought to the market to substitute considerable amounts of copper (>1300 t/year in European organic agriculture alone). One strategy to detect new extracts with the desired activity is the screening of libraries of natural extracts.

Screening for fungicidal activity in natural extracts

Microbial extracts are screened for activity against the important plant pathogens *Plasmopara viticola*, *Venturia inaequalis* and *Phytophthora infestans* in a tiered approach. Extracts are first evaluated *in vitro* in 96-well plates for an inhibitory activity. Activity of promising candidates can then be confirmed on apple and/or grapevine seedlings under controlled conditions. Active compounds can be identified in collaboration with partner institutes specialized in natural product chemistry using bio-guided fractionation.

Applications

The selected procedures allow a fast and reliable identification of natural extracts with so-far unknown relevant fungicidal activity and their active compounds, while requiring minimal amounts of extracts.

Contact

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More Information on DialogProTec: www.dialogprotec.edu

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Der Oberrhein wächst zusammen: mit jedem Projekt.
Dépasser les frontières, projet après projet.