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PHAGE EFFICIENT AGAINST FIRE BLIGHT AND FRUIT TREES BACTERIAL CANKER PATHOGENS

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Fire blight and bacterial canker of apple, pear and quince, the economically most important diseases of fruit trees, are caused by the bacterial phyto-pathogens *Erwinia amylovora* and *Pseudomonas syringae* pv. *syringae*, respectively. *E. amylovora* and *Ps. syringae* pv. *syringae* are often present together in the aerial parts of plants and in the most cases both bacteria are detected in the same plant samples. Currently available bacteriosis control agents as, e.g., copper preparations or antibiotics act mostly unspecifically and are prone to resistance development. Alternative disease management strategies are, therefore, highly solicited.

Bacteriophages, i.e. highly specific bacterial viruses that infect and lyse bacteria, are under intensive evaluation as the biocontrol agents. The advantage of phages is that they are natural components of ecosystems, infect only bacteria sensitive to them and are non-toxic to plants, animals and humans.

Phages, infecting *E. amylovora* and *Ps. syringae* pv. *syringae* known up to now belong to the taxonomic families *Podoviridae*, *Myoviridae*, and *Siphoviridae*.

When studied the ability of phages isolated in the quince orchard to infect cells of fire blight and bacterial canker causative agents one phage was detected to be able to lyse both pathogens. A major capsid protein based multiplex PCR assay used for phage identification revealed that the isolated phage belongs to the Y2 group, which includes *Myoviridae* phages. Some of the representatives of the Y2 group are the broad host range phages. By pulsed-field gel electrophoresis analysis genome size of the phage was determined.

After a detailed study of biological effectiveness, the isolated bacteriophage could be used for biocontrol of the fire blight and bacterial canker pathogens.

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