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IMPACT OF *Erwinia amylovora* BACTERIOPHAGES ON QUINCE FRUCTIFICATION

SAMOILOVA Anna, https://orcid.org/0000-0003-4976-0644

Moldova State University, Institute of Genetics Physiology and Plant Protection, Chisinau, Republic of Moldova,
Corresponding e-mail: anna.samoilova@sti.usm.md

Yield losses of the economically important plant cultures caused by diseases require further improvements in the most harmful phythopathogens management. In this context the disease control agents must effectively inhibit the pathogen development without adversely affecting the plants' fruit production.

The purpose of the present work was to evaluate the impact of the promising fire blight control agents, *Erwinia amylovora* bacteriophages, on the quince fructification.

Materials and methods. The trials were carried out at the experimental plot of the MSU, IGFPP on the quince flowers during the blooming stage. There were the following variants in the experiment: flowers, infected with *E. amylovora* suspension contained 10^3 CFU/ml; flowers inoculated with *E. amylovora* suspension contained 10^3 CFU/ml and treated with 10^6 PFU/ml of bacteriophage isolates; flowers infected with *E. amylovora* suspension contained 10^3 CFU/ml and treated with Cuprumax preparation, containing copper oxychloride. Flowers treated with sterile distilled water were used as the controls.

The quince experimental plot is situated far from the other pome fruit plantations. Monitoring of the fire blight causative agent appearance on the plants, which are not involved in the experiments is carried out continually all over the year.

Summarized results. Pome plants are most vulnerable to fire blight causative agent, bacteria *E. amylovora* infection during flowering, which is a crucially important stage for the fruit forming. This means, that the pathogen's control agents used at the flowering stage have to be safe for the fruit-setting process. Normally, the final level of the fruit development on quince trees is 10-15% of the total initial flowers amount. The quince plants at the experimental plot formed approximately 12-15% fruits in the seasons with favorable conditions for blossoming and fruit forming. In the 2026 vegetation period the abundant blossoming was observed, but short term low temperatures during the BBCH 67 stage of flowering had an extremely negative

impact on the fruits production. Nevertheless, assessment of the fruits presence in the experimental variants, carried out in the third decade of July, the 2026 vegetation period, at the time of the BBCH 76 stage when fruits were about 60% final size, revealed that flowers inoculated with *E. amylovora* suspension and treated with bacteriophages formed 4% of fruits. Flowers infected with *E. amylovora* suspension and treated with Cuprumax also formed 4% of fruits. There were no fruits in the variant, where flowers were infected with *E. amylovora* suspension. In the variant, where quince flowers were treated with sterile distilled water there were 6% of formed fruits. All fruits that reached the BBCH 76 stage of development were counted.

Conclusions. It has been found out that the fire blight pathogen infection of the flowers leaded to the fruits absence but after treatment with bacteriophages there were the same amount of the 60% final size fruits as after treatment with copper containing compound. Thus, after thorough study, bacteriophages can be used for the prevention of fire blight in cases where the application of chemical agents is prohibited and there is a high risk of the pathogen active multiplication in the flowers.

Keywords: bacteriophages, *Erwinia amylovora*, quince, fructification.

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