

Recombinant plasmids for the synthesis of dsRNA elicitor genes *inf1* and *inf2* for plant protection against *Phytophthora infestans*

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Spray-induced gene silencing (SIGS) is a promising approach for plant protection against pathogens. dsRNAs trigger degradation their complementary mRNA. This effect allows turn off the genes of both the plant and the pathogen at the level of translation.

We have selected *Phytophthora* genes, elicitors, the switching off of which will potentially lead to reduce pathogenicity, and tested various methods of processing potato exogenous dsRNA. The question of the effectiveness of SIGS against *Phytophthora* is being actively investigated, therefore determination of promising targets and processing parameters is our current task.

For the production of dsRNA genes *inf1* and *inf4* we constructed two expression vectors based on the plasmid L4440, dsRNA was developed in *E. coli* HT115. For processing, we used potato plants 6 weeks old. Control plants were treated with water, experimental ones with a solution of dsRNA of one of the genes or their combination. It has been shown that the treatment of plants protects them from *phytophthora*

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The main publications of authors on the subject of the abstract:

Ivanov A.A.; Ukladov E.O.; Golubeva T.S. *Phytophthora infestans*: An Overview of Methods and Attempts to Combat Late Blight // *J. Fungi* (2021) 7: 1071. doi:10.3390/jof7121071

Ivanov A.A.; Tyapkin A.V.; Golubeva T.S. How Does the Sample Preparation of *Phytophthora infestans* Mycelium Affect the Quality of Isolated RNA? // *Curr. Issues Mol. Biol.* (2023) 45: 3517-3524. doi:10.3390/cimb45040230

Take-home message:

Two expression vectors based on the plasmid L4440 were constructed for the production of dsRNA genes *inf1* and *inf4*

The treatment with dsRNA of *inf1* and *inf4* protects plants from *Phytophthora infestans*