

## *Listeria monocytogenes* under the influence of food plants

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### Abstract

*Listeria monocytogenes* is the causative agent of human and animal listeriosis. It is known that the classical bacterial forms of *Listeria*, being saprophytes, have high stability in the external environment, they are able to reproduce in various environmental objects, including in soils and plants. It is known that plants can be a natural reservoir of pathogenic *Listeria* and a source of human infection. Volatile organic emissions of germinating seeds, due to the high penetrating ability in the soil, availability for assimilation, can be a source of carbon and energy for soil microorganisms. It is known that not all bacteria are capable of assimilating the volatile metabolites of germinating seeds, and the specificity of the action of volatile organic compounds depends on both the type of bacteria and the type of germinated seeds. Therefore, the volatile metabolites of germinating seeds of cultivated plants were studied, which are factors of transmission of *L. monocytogenes* - lettuce (*Zactuca sativa*), corn (*Zea mays* L.). As a result, it is proved that the volatile metabolites of germinating plant seeds stimulate the growth and reproduction of pathogenic *Listeria* in soils. The specificity of the action of volatile organic compounds of plants on the reproduction of the studied bacteria is noted. The main volatile fraction that affects the growth and reproduction of *L. monocytogenes* is methanol, which bacteria use as their sole source of carbon and energy.



### Speaker Publications:

1. Marina L. Sidorenko; L. S. Buzoleva (2012) Effect of volatile metabolites from germinating seeds on the reproduction of the bacteria *Listeria monocytogenes* and *Yersinia pseudotuberculosis*. *Applied Biochemistry and Microbiology* 48, 275–279.
2. Marina L. Sidorenko; L. S. Buzoleva; N. M. Kostenkov (2006) The effect of soil properties on the preservation and reproduction of *Listeria* and *Yersinia*. *Eurasian Soil Science* 39, 211–217.

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### Biography:

In 2004, Marina Sidorenko has completed his PhD in two specialties: soil science and microbiology. She is a leading researcher at the FSCEATB FEB RAS. She has published over 35 articles in well-known journals and 4 patents of the Russian Federation, is a member of the editorial board and reviewer of several journals. Her areas of interest are applied microbiology, soil microbiome, sanitary microbiology.

Vladislav Sidorenko is a student of PRMU. He has 3 articles in scientific journal. His scientific interests: medical microbiology, epidemiology, infectious diseases.