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ABSTRACT BOOK



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Environmental Microbiology/Microbial Ecology /Microbial Communities - Part III

ECOLOGY OF LISTERIA MONOCYTOGENES IN SOIL: EFFECT OF THE BIOTIC ENVIRONMENT ON SURVIVAL AND TRANSCRIPTOME RESHAPING.

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Backgrounds

Listeria monocytogenes is a bacterium found in many habitats such as soil, plants, animals, foodstuff and food processing facilities. Circulation between habitats is a source of its transmission to food and eventually to the consumer. Contaminated foodstuff is indeed the vector of listeriosis, a life-threatening disease mainly to immunocompromised people and pregnant women. One of the intriguing facets of *Listeria monocytogenes* is its ability to adapt its physiology to complex, heterogeneous habitats. With its complex chemistry, texture, dense microbiota and overall biotic fraction, soil is a nice example of such heterogeneous habitat. Persistence in many habitats suggests that *L. monocytogenes* is able to integrate a range of environmental cues in the circuitry of regulation of transcription.

Objectives

This study aimed at assessing in one hand extrinsic factors that shape the fate of *L. monocytogenes* in soil, and in the other hand the response of *L. monocytogenes* to the biotic environment found in soil.

Methods

The response of *L. monocytogenes* EGD-e to the biotic fraction of soil was investigated in irradiated and untreated microcosms through a combination of transcriptomic approaches and population dynamics.

Conclusions

The fate of *L. monocytogenes* is dependent on both abiotic and biotic characteristics and the latter have a major impact on the dynamics of the populations of *L. monocytogenes* in soil. Major transcriptome reshaping was observed where *L. monocytogenes* recruits its repertoire of transporters and specific pathways to access and utilise the available substrates. The biotic environment further affects transcriptome and triggers further regulation.