

DESCRIPTION FOR THE GENERAL PUBLIC

The ability of bacteria to survive different environmental conditions depends on tight cooperation between members of the same species. In practice it means such social behaviors as coordinated movement, biofilm formation, or cannibalism. We have observed such behavior in our laboratory in experiments, in which an environmental isolate of *Bacillus subtilis* (MB73/2) exhibited antagonistic effect towards *Dickeya* 101A/10/2005 (*Dickeya solani* IFB0102), causing its coordinated directional movement.

The research aim of this project is explanation on molecular level the mechanism of interaction between both investigated strains.

We are planning to check which compounds are secreted into the medium by bacteria of both investigated species and are responsible for observed effect. Moreover, we are planning to check whether observed effect is antagonistic and/or bactericidal. We are also planning to identify genes responsible for production of these compounds and observed coordinated directional movement. Interesting will be also answer to the question, whether presence of *B. subtilis* MB73/2 in the soil protects potato plant against infection with *D. solani* IFB0102.

Mechanisms of mutual interaction of microorganisms in such multispecies environment as the soil are complex and in many aspects unknown. Identification of factors and processes responsible for antagonism between members of *B. subtilis* and *Dickeya* sp. species will provide new data regarding competition between two species naturally occurring in the soil environment. Apart from undoubted cognitive value, knowledge about mechanisms of antagonisms between investigated bacterial species can in the further perspective contribute to designing new methods of plant protection against plant pathogens. Such method would be based on *B. subtilis* MB73/2 or/and factor/factor produced by it, identified in this project.