

SUCCESS STORY

BACSIN / Bacterial Abiotic Cellular Stress and Survival Improvement Network

Research area: FP7 – Cooperation / FOOD, AGRICULTURE AND BIOTECHNOLOGY (FAB) – Improved Microbes for the environment – Microbial gene expression under condition of stress

Number of partners: 15
Coordinator: University of Lausanne (UNIL)
Start date – End date: 2008-06-01 to 2012-05-31
Funding: € 5 530 000 / UNIL: € 606 839
Type of contract: Large-scale integrating project (IP)



JAN ROELOF VAN DER MEER



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“My main interest is the environment, and the quality of our vital resources.”

ON THE VIRTUES OF BACTERIA

A full professor since 2012 in the Department of Fundamental Microbiology at UNIL, Jan Roelof van der Meer is holder of a diploma in environmental sciences. He is the coordinator of a large project financed by the European Union, called BACSIN, which terminated in May 2012 and was aimed at exploiting bacteria to decontaminate toxic substances.

What was the objective of the project BACSIN?

It was about exploiting the capacity of certain bacteria to decontaminate toxic substances. Researchers are fascinated by the idea of introducing such bacteria into contaminated areas where they act as very efficient decontaminating agents. However, can these bacterial strains be efficient when placed in a different ecosystem, together with predators and competing with other microbes? This is the question we asked ourselves.

And what was the main difficulty of this research?

For biologists, going from theory to practice is a delicate matter. In fact, if in the laboratory the micro-organism put in contact with the pollutant will make it harmless, it won't have the expected effect once introduced into a soil of complex composition. Understanding the biological mechanisms that allow bacteria to act as decontaminants was one of the goals of our project. The other consisted in finding tools to measure the activity of populations of bacteria inoculated into the environ-

ment, and to evaluate the level of toxicity of pollutants.

Where is your study taking place, and what are its results?

Many polluted sites across Europe acted as an experimentation ground, notably in Geneva where the site of the future ecologically-friendly neighbourhood of La Jonction, previously occupied by a gas factory, interested the Lausanne microbiologists. But our discoveries are exciting. We have observed that on the surface of the leaves of certain plants, there is a rich community of bacteria capable of breaking up the pollutants in suspension in the air, notably in areas surrounding motorways. It's the first time that convincing results have been obtained on such a large scale.



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ABOUT THE PROJECT

BACSIN (“Bacterial Abiotic Cellular Stress and Survival Improvement Network”) obtained a UE subsidy in the FOOD, AGRICULTURE, FISHERIES AND BIOTECHNOLOGY domain (7th Framework Programme). Terminated in May 2012 it had a budget of € 5.6 million split between 16 European partners. BACSIN mobilizes seven doctoral students among forty collaborators. Four small-to-medium companies, including one in the Lake Geneva region, bring their technical

contribution. In extension of BACSIN, an international summer school organized in July 2011, brought together around 20 doctoral students, half coming from the United States. The students were therefore able to practice the BACSIN methods, and to better appreciate the power of bacteria in the environment.

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