



Phytoplankton - the foundation of the oceanic food chain © Pictureboss

THE CHALLENGE

The threat of food insecurity is a critical global challenge, compounded by climate change and population growth. Forward-thinking solutions are needed to meet this challenge and one potential area for exploration is microbiomes, which are communities of microbes (bacteria, viruses, fungi, etc.) in a certain environment. Microbiomes are known to regulate the productivity and health of major food sources across land and sea. Therefore, they can positively impact food production, food and nutrition security and ultimately influence human health. However, we lack a deep understanding of the microbiomes associated with our food systems.

PROJECT OBJECTIVES

SIMBA aims to gain a better understanding of microbiome structure and function, related to marine and terrestrial food chains and to verify the sustainability of microbial innovations of the food system. Focusing primarily on agriculture and aquaculture, **SIMBA** will harness complex soil and marine microbial communities for sustainable food production, delivering tangible benefits to society.

www.simbaproject.eu

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AT A GLANCE

PROGRAMME: Horizon 2020 (Sustainable Food Security)

TYPE OF ACTION: Innovation Action (IA)

DURATION: November 2018 – October 2022

CONSORTIUM: 23 partners in 11 European countries

COORDINATOR: Natural Resources Institute Finland (Luke)



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EXPECTED RESULTS

- Open access database with new and pre-existing microbiome data to identify microbes that can perform useful functions in the food production process.
- Improved understanding of the role of salt-tolerant microbiomes in the cultivation of salt resistant crops.
- The application of starter cultures in food products with beneficial vitamins, polyunsaturated fatty acids and antioxidants contributing to health human benefits.
- Enhanced consistency of microbiomes in field applications.
- Improved understanding of the functions of individual and sustainable diet-induced variations in gut microbiota.
- Near to market ready development of cost-effective applications of new microbes, food, crop and algae products.
- Proven increase in sustainability of European food systems by implementing the microbial interventions.

CONSORTIUM: 23 PARTNERS IN 11 EUROPEAN COUNTRIES

- 1 Natural Resources Institute Finland (Luke)
- 2 Københavns Universitet (UCPH)
- 3 Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA)
- 4 Stichting Nederlandse Wetenschappelijk Onderzoek Instututen (nwo-1)
- 5 Helsingin Yliopisto (UH)
- 6 Bio Base Europe Pilot Plant VZW (BBEPP)
- 7 Wageningen University & Research (WUR)
- 8 AquaTT UETP CLG (AQUATT)
- 9 Fermentationexperts AS (FEXP)
- 10 Fermbiotics ApS (Fermbiotics)
- 11 Università di Parma (UNIPR)
- 12 Norsk Institutt For Vannforskning (NIVA)
- 13 Rheinische Friedrich-Wilhelms-Universität Bonn (UBO)
- 14 Matis ohf (MATIS)
- 15 Norges Miljø-Øg Bivitenenskaplige Universitet (NMBU)
- 16 Saline Farming Texel (SFT)
- 17 Necton - Companhia Portuguesa De Culturas Marinhas Sa (NECTON)
- 18 Agriges S.r.l. (AGRIGES)
- 19 Fundación Centro Tecnológico de Acuicultura de Andalucía (CTAGUA)
- 20 Universität Bielefeld (UNIBI)
- 21 Allmicroalgae Natural Products Sa (ALLMICROALGAE)
- 22 SUDAU AGRO GmbH (SUDAU AGRO)
- 23 Centro Culture Sperimentali Aosta S.r.l. (CCS Aosta)



● SME ● Higher Education Institute ● Research Organisation

Contact Us:

Find out more:
www.simbaproject.eu
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Designed and developed by AquaTT

Regulation, legislation & safety of biostimulants and biofertilisers, including nanoformulates

Date: 30th Sep – 2nd Oct 2021
Location: Venice, Italy

Module 1: Microbial technologies: application from Farm to Fork

Thursday, 30th September 2021 – from 14:00 to 18:30

- > Welcome address – Nelson Marmioli
- > Programme overview – Elena Maestri
- > Introduction to SIMBA – Anne Pihlanto
- > The new approach for the fertilizer sector: between R&D and the new Regulation EU 2019/1009 – Manuel E. Isceri
- > Identification and application of beneficial microbial consortia to crop production in Italy and Germany: the SIMBA project – Annamaria Bevivino
- > Strategies to limit arsenic accumulation in rice – Om Parkash Dhankher
- > Application of biostimulants and biofertilisers to crop production in the USA – Henry T. Nguyen

Module 3: Risk assessment and safety aspects in the application of microbial and nano-technologies to agriculture and food production

Friday, 1st October 2021 – from 14:00 to 19:00

- ❖ Risk assessment of nanomaterials to be applied in agriculture and food production in the EU – Francesco Cubadda
- ❖ Achieving global food security by tracing nanoparticle transformations in terrestrial crops using synchrotron techniques – Jorge Gardea-Torresdey
- ❖ Soil microbial composition allows assessment of biological product effectiveness – Alberto Acedo
- ❖ Nano-enabled strategies to enhance crop tolerance to biotic and abiotic stress – Jason White
- ❖ Behavioural change needed to adopt microbial innovations – Frederic Ang
- ❖ Circular bio-economy, how can it support a sustainable process industry and society? – Ludo Diels

Module 2: Nanotechnologies and nanoformulates: application to Farm to Fork

Friday, 1st October 2021 – from 9:00 to 13:30

- ✓ The "Microbiotics": challenges and limitations of their use as biofertilisers and biostimulants – Marco Nuti
- ✓ Regulation and risk assessment process for food improvement agents – Ana Rincon
- ✓ Nanoformulates and nanofertilisers: how much is needed for agriculture? – Marta Marmioli
- ✓ The rough edge of the biostimulants: the regulation of the promising solution of farming – Caterina Giovannetti and Enrico Ercole
- ✓ 12:00-12:40 Biochar – a non-conventional, low-cost nanomaterial for agriculture – Nelson Marmioli

Module 4: New technologies for extreme environments: microbial and nano-technologies application in response to climate change

Saturday, 2nd October 2021 – from 9:00 to 13:30

- o Climate extremes and impacts on agriculture – Andrea Toreti
- o Use of biofertilisers and biostimulants for remediation of contaminated soils – Michel Mench
- o Application of biochar and bacteria inoculated biochar on the Cd and Cu contaminated orchard soil – Chen Tu
- o Prospects for microbial biostimulants under the fertilising products regulation – Kristen Sukalac

COURSE ORGANIZERS



SCIENTIFIC COORDINATOR
Nelson MARMIROLI - Professor
Emeritus Environmental Biotechnology - University of Parma, SITEIA-PARMA
Director of the Interuniversity Italian Consortium for Environmental Sciences



SECRETARY
Elena MAESTRI - Full Professor
University of Parma, SITEIA-PARMA

Course lecturers

- ❑ Nelson Marmioli, University of Parma
- ❑ Elena Maestri, University of Parma
- ❑ Anne Pihlanto, Luke, Finland
- ❑ Manuel E. Isceri, Federchimica Assofertilizzanti, Italy
- ❑ Annamaria Bevivino, ENEA, Italy
- ❑ Om Parkash Dhankher, Umass Amherst, USA
- ❑ Henry T. Nguyen, University of Missouri, Columbia, MO, USA
- ❑ Marco Nuti, University of Pisa and Scuola S. Anna Pisa, Italy
- ❑ Ana Rincon, EFSA, Italy
- ❑ Marta Marmioli, University of Parma, Italy
- ❑ Caterina Giovannetti, CCS Aosta, Italy
- ❑ Enrico Ercole, CCS Aosta, Italy
- ❑ Francesco Cubadda, Istituto Superiore di Sanità, Italy
- ❑ Jorge Gardea-Torresdey, University of Texas El Paso, USA
- ❑ Alberto Acedo, Biomemakers, Spain
- ❑ Jason White, Connecticut Agricultural Experiment Station, New Haven, CT, USA
- ❑ Frederic Ang, Wageningen University, The Netherlands
- ❑ Ludo Diels, Antwerp University, Belgium
- ❑ Andrea Toreti, JRC, EU
- ❑ Michel Mench, INRAE and University of Bordeaux, France
- ❑ Chen Tu, Chinese Academy of Sciences, China
- ❑ Kristen Sukalac, European Biostimulants Industry Council (EBIC) Secretariat, Belgium

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