



## Biological Sciences and Applied Microbiology (BSAM)

Rosário Oliveira, [Maria João Vieira](#)

*IBB-Institute for Biotechnology and Bioengineering, Centre of Biological Engineering,  
Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Portugal.*

The Biological Sciences and Applied Microbiology Group is a research unit at the Centre of Biological Engineering – University of Minho. BSAM activities aim at increasing the basic and applied knowledge in this field for their application in products and processes development in industry, health and environment. Currently, the main objectives of the different research topics re:

- Molecular Biotechnology – to develop recombinant yeast strains for protein production of low value substrates; to develop molecular probes for microbial identification.
- Environmental Microbiology – to develop the concept waste(water) to energy by studying the ecology and physiology of relevant microbes; to study population dynamics of protozoa in activated sludge, to assess microbial interactions in microbial fuel cells.
- Food Mycotoxicology- to develop detection methods of mycotoxigenic filamentous fungi and their main mycotoxins in foods and feeds.
- Biomolecules and Biomaterials for Biomedical Applications – to evaluate the chemotherapeutic and biomarker potential of several biomolecules; to obtain bacterial cellulose, dextrin hydrogels and dextrin/mannan nanoparticles.
- Bacteriophage Physiology and Therapies – to screen bacteriophages and assess their activity against biofilm-bacteria; to construct a phage collection; to evaluate phage therapy in alternative to antibiotics;
- Biofilms – to develop natural antimicrobials; to identify mechanisms of resistance to antimicrobials in industry and health care; high-throughput assessment of microbial adhesion and biofilm formation; to assess in vitro and in vivo the expression of virulence by biofilm microorganisms. Cell-to-cell communication in mono and multi-species biofilms and its implication in virulence; to evaluate the immune system response to biofilms for vaccine development.
- Filamentous Fungi Collection – to screen, isolate, identify and preserve new fungal species.