

MassNat - High-resolution mass spectrometry for the discovery and characterization of novel natural products

A major challenge in the search for new microbial natural products is the identification of the conditions under which microorganisms synthesize these bioactive compounds. One promising approach is to study producers in their natural habitat, as the natural compounds are not only of pharmacological interest, but also have an important biological function in the ecosystem. If the required habitat conditions can be simulated in the laboratory, it is possible to identify the bioactive natural products. An essential prerequisite for this is a highly sensitive and flexible analytical platform that enables the analysis of complex samples.

In focus of the project is a liquid chromatography mass spectrometry system which, by coupling with a desorption electrospray ionisation (DESI) source, enables the analysis of microbial secondary metabolites directly in the biological matrix. The system is also used for the screening of complex microbial culture extracts. An analytical platform has been created which opens up new and efficient possibilities for the discovery and further development of urgently needed antibiotic and/or cytostatically active drug candidates.