

## **Microbial societies in water and soil**

Drinking water and surface water contain hundreds of environmental xenobiotics at low concentrations, including drug residues, pesticides and other organic compounds from among other things cosmetics, care products, psychopharmaceuticals and pesticides. The chemical substances are dissipated in the environment where they can have a harmful effect on plants and animals and negatively affect our health. The substances also influences the microorganisms prevalent in water and soil, which are responsible for the decomposition of environmental xenobiotics in nature and in the biological water treatment plants.

COWIfonden has supported the purchase of equipment for analysing the different types of microorganisms and how many of them are found in soil or water. The equipment will be used for registering the impacts of environmental xenobiotics on microbial societies in water and soil including the impacts on the microorganisms in biological water treatment plants.

The equipment will be used in a research project where Aarhus University (Bioscience) will analyse how drug residues and pesticides are decomposed and bound to a new type of planted bacterial bed. The purification in the bacterial beds takes place by combining chemical reactions, microbial decomposition, plant absorption and microbial conversion. The aim is to develop a concept for a low-cost and effective treatment of environmental xenobiotics in drinking water and waste water.