“ENVIRONMENT FOR BETTER HEALTH” CONFERENCE 8-11 MAY 2003

PEPCY

Toxic and Bioactive **PEP**tides in **CY**anobacteria

Problem

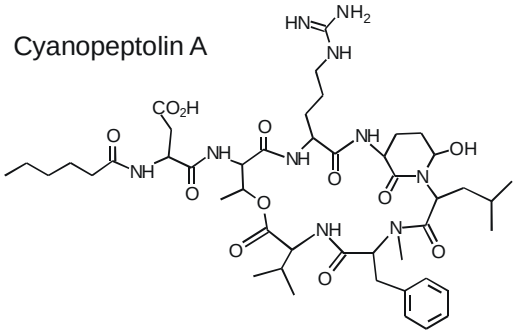
Cyanobacteria, also called “blue-green algae” are unicellular organisms, some aggregating to colonies or filaments, that live suspended in the water or on surfaces. In suspension, high cell densities cause pronounced green turbidity of the water.

Many species contain highly toxic peptides.

One group of them – the microcystins – is well studied, and the World Health Organisation has provided a provisional Guideline Value of 1 µg/Liter for their concentration in drinking water.

The toxicity and bioactivity of other groups, such as Cyanopeptolins, Microginins, and Anabaenopeptins is poorly understood.

Cyanopeptolin A

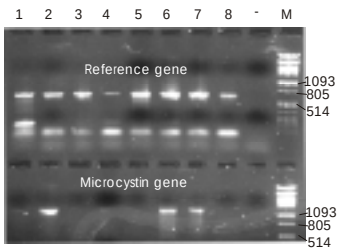


Aims and expected application of results

- Characterise health hazards from peptides in cyanobacteria
- Assess their occurrence in water resources used by humans
- Provide tools for monitoring and surveillance
- Provide a risk assessment framework for environmental health authorities
- Provide information about this health hazard for the general public

Approach

Work Package 1: provides new molecular genetic and mass spectrometric tools for characterising genotypes with specific peptides



Work Package 2: studies cyanopeptide occurrence in water-bodies, screens for toxicity, and studies factors influencing cyanopeptide production in laboratory cultures

Work Package 3: develops methods for quantitative cyanopeptide analysis and grows culture material for toxicity testing of cyanopeptides

Work Package 4 tests toxicity of cyanopeptides and investigates by what mechanisms they are toxic

Work Package 5 develops the framework for risk assessment and dissemination packages for user groups

The 11 PEPCY Partner groups and responsible scientists (further information at www. …coming up soon …)**:**
Federal Environmental Agency (Germany); Humboldt-Uni. Berlin (Germany); Uni. of Helsinki (Finland); Uni. of Dundee (United Kingdom); Technical Uni. Berlin (Germany); Uni. Of Amsterdam (Netherlands); Norwegian Institute for Public Health Oslo (Norway); Univ. of Copenhagen (Denmark); Uni Konstanz (Germany); Austrian Academy of Science (Austria); Institut Pasteur Paris (France)