

## NEW FLUORESCENCE METHODS FOR DETERMINATION OF PHYTOPLANKTON BIOMASS

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Phytoplankton organisms are widely used in laboratory experiments (growth studies, metabolic activity, biotechnology, tests of toxicity) as well as in field studies. Amount and composition of phytoplankton assemblages are important parameters of water quality in reservoirs and rivers. Special attention is given to cyanobacteria, especially because of their production of toxic compounds. That is one of the reasons why simple, rapid and sensitive methods for phytoplankton quantification and distinguishing its individual divisions are of special interest.

In 1990's, in vivo fluorescence of chlorophyll a became used as a parameter of total phytoplankton biomass. In laboratory experiments, this method is able to replace routinely used endpoints as absorbance or cell counting due to simplicity and higher sensitivity.

This approach is also applicable for in situ measurements. First possibility is connecting the fluorometer to the pumping system which brings continuous or discrete water samples to the measuring cell of the fluorometer. Recently, submersible fluorescence probes have been developed for on-line monitoring of phytoplankton abundances in fresh and sea waters. Some of them are able to distinguish between several algae divisions (e.g. green algae, cyanobacteria, diatoms...) and seem to be a very promising tool for phytoplankton research as well as water management. However, as a brand new method, other comparisons to standard methods (cell counting, chlorophyll a determination by spectrophotometry) are needed for a complex verification of these instruments.