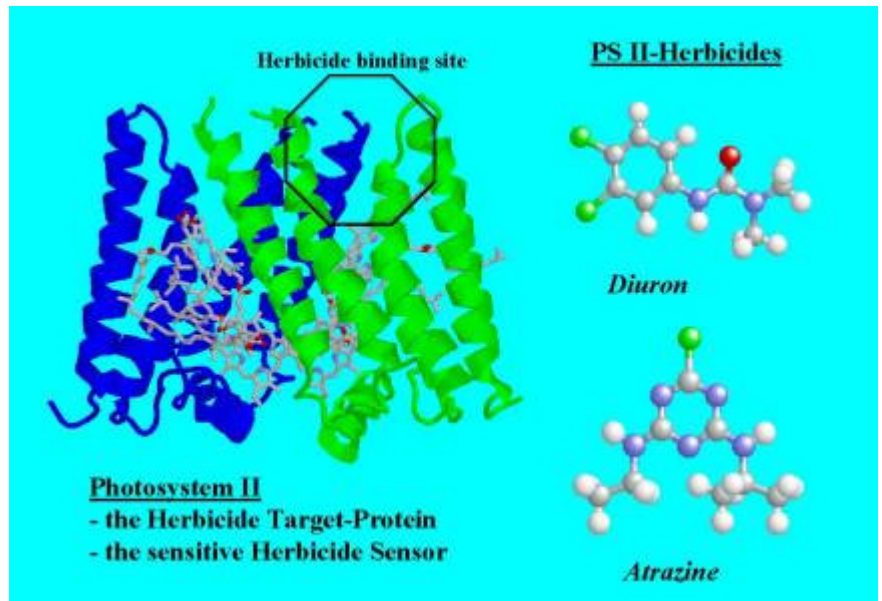


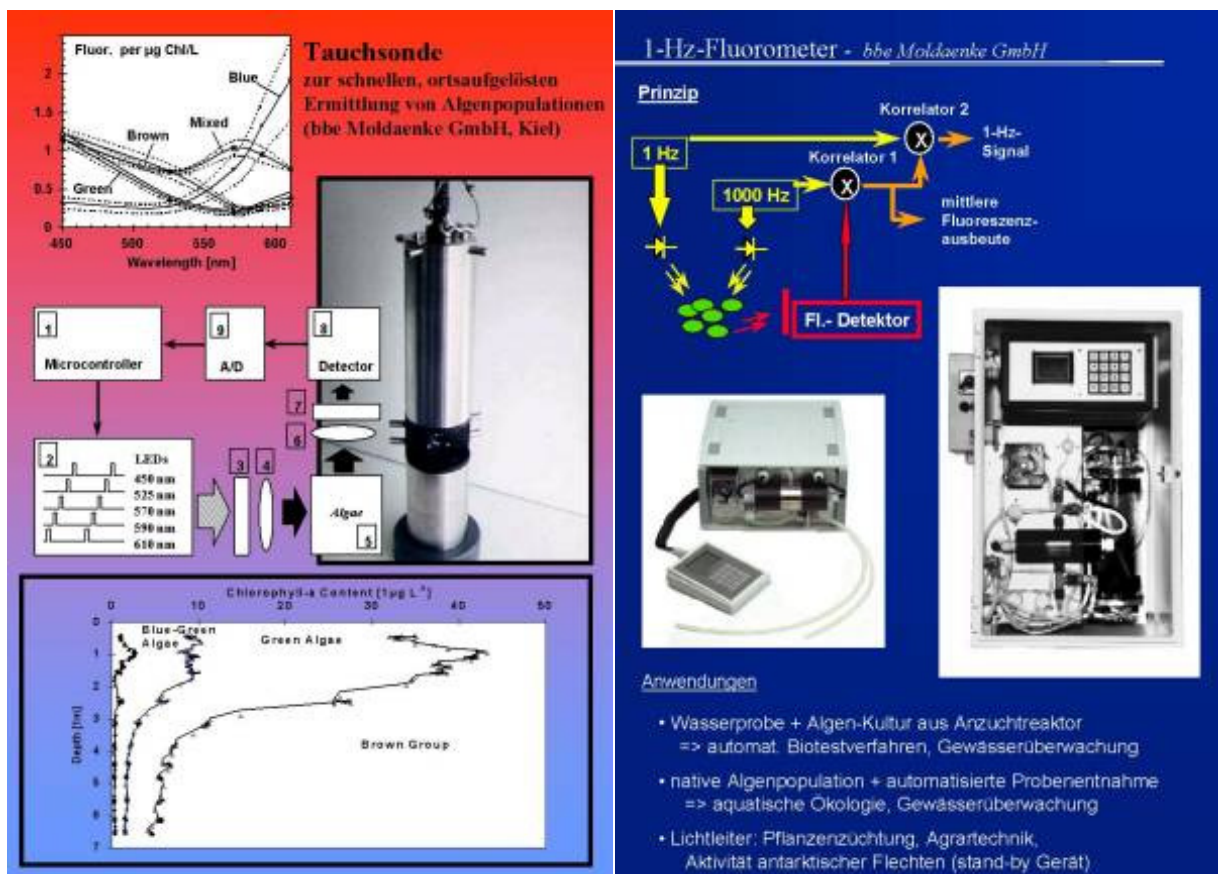
Applied research: biosensors and biotests

PS II is the target protein of a large group of herbicides, which during the recent years also have emerged as pollutants in drinking-water resources (e.g. Diuron, Atrazine). These herbicides competitively inhibit electron flux in PS II by blocking the quinone binding site (Q_B binding site). Binding of an inhibitor to this site can be detected fluorometrically with high sensitivity. In principle, herbicide concentrations below the limiting value (0.1 mg/L) defined by the EU can be detected.



The development of a sensitive system for detection of herbicides in water is developed; stabilized PSII particles serve as a sensor. Work on this project also includes investigation of the binding energetics and kinetics of different substrates and inhibitors at the Q_B binding site.

Development of the sensor system was finished in 2001. This project has been pursued in cooperation with the company bbe Moldaenke GmbH (Kiel). We also cooperate with this company regarding other development projects (biotest procedures and fluorimetric measurements for ecosystem research). A milestone has been the development of a submersible probe which allows species-group specific, quantitative determination of a vertical population profile of algae within minutes.



Anwendungen

- Wasserprobe + Algen-Kultur aus Anzuchtreaktor
=> automat. Biotestverfahren, Gewässerüberwachung
- native Algenpopulation + automatisierte Probenentnahme
=> aquatische Ökologie, Gewässerüberwachung
- Lichtleiter: Pflanzenzucht, Agrartechnik, Aktivität antarktischer Flechten (stand-by Gerät)