

# Risk assessment for submerged macrophytes

Theme: Risk assessment procedures for pesticide registration

BO-06-010-001

## Problem

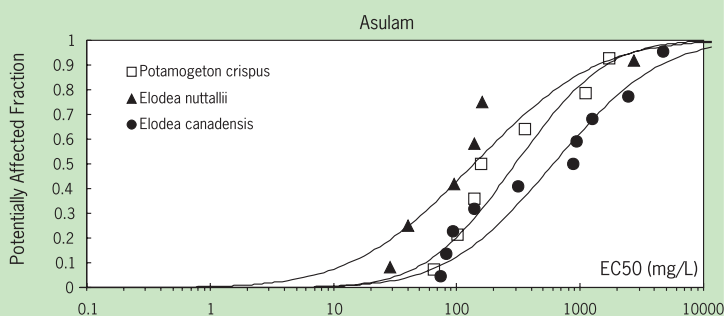
Despite their important role in aquatic ecosystems, submerged aquatic macrophytes are only poorly addressed in the Environmental Risk Assessment procedures for pesticides. Tests with submerged macrophytes are only required for herbicides if risks to aquatic plants (as tested on *Lemna* spp.) have been identified. It is being questioned whether toxicity tests with *Lemna* can be regarded as representative of effects on submerged macrophytes. For submerged macrophytes no internationally accepted guideline on laboratory or field tests exists.

## Approach

- Performing laboratory toxicity tests with submerged macrophytes
- Evaluation of sensitivity of macrophyte species and endpoints
- Testing of different macrophyte test approaches with several substrates and growth media
- Evaluation of toxicity values for submerged macrophytes by means of the Species Sensitivity Distribution approach



Laboratory macrophyte toxicity tests.



Endpoint distributions from single macrophyte species for asulam.

## Results

- No macrophyte species is consistently the most sensitive
- Root endpoints are the most sensitive category of endpoints for the compounds tested
- A range of endpoints is more representative of macrophyte fitness than biomass and growth only

## Future use in risk assessment

The results are used for developing guidance for macrophyte toxicity tests.

## Communication 2008

- Workshop Aquatic Macrophyte Risk Assessment for Plant Protection Products, Wageningen, January 14<sup>th</sup>-16<sup>th</sup> 2008
- Gertie H.P. Arts, J. Dick M. Belgers, Conny H. Hoekzema and Jac T.N.M. Thissen, (in press)  
Sensitivity of submerged freshwater macrophytes and endpoints in laboratory toxicity tests. Environmental Pollution, published on-line, doi:10.1016/j.evpol.2007.07.019

Gertie Arts, Dick Belgers & Theo Brock

Contact: Gertie Arts

Alterra

P.O. Box 47, 6700 AA Wageningen

T +31 317 48 65 50 - F +31 317 41 90 00

gertie.arts@wur.nl - www.alterra.wur.nl

*This project is part of the BO research programme  
Plant Health of the Ministry of Agriculture, Nature and Food*