An Update on *Myriophyllum* Ring-test Activities

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Outline

- Background of *Myriophyllum* Workgroup
- Protocol
- Current status of final ring test

Background

Myriophyllum Work Group

- formed at the AMRAP (Aquatic Macrophyte Risk Assessment for Pesticides) workshop in 2008
- AMRAP participants identified the need to test certain herbicides on a rooted, macrophyte species for Tier 1 risk assessments in EU
- *Myriophyllum* (submerged, rooted dicot) selected as species of choice
- objective to develop and ring-test a protocol for *Myriophyllum* species

Workgroup Lead: Peter Dohmen (BASF)

Workgroup members

- 13 representatives from academia, government authorities & industry
- representatives from 15 participating laboratories

Schedule

- Protocol developed in 2008
- Pre-test & final ring test from 2009 to 2011
- OECD Test Guideline project initiated in May 2011
  - Workgroup contacts with OECD: Gertie Arts (Alterra) & Jo Davies (Syngenta)

Protocol

Method for *Myriophyllum* species	
Test system	Plant pots in glass test vessels (minimum volume of 2 L)
Sediment	Artificial sediment (OECD 219) with added N and P nutrients
Media	Smart and Barko medium at pH 7.5
Application	Via water column
Test design	5 concentrations plus control, each with 3 replicate test vessels containing one plant pot of 3 shoots
Test conditions	20 ± 2ºC with 16/8 photoperiod (160 $\mu E \cdot m^{-2} \cdot s^{-1}$)
Test duration	3 to 7-day acclimation phase followed by 7 day *(M. aquaticum*) or 14 day (*M. spicatum*) exposure phase
Assessments	Shoot length on minimum of 4 occasions Fresh and dry weight at beginning and end of test
Endpoints	EC_{50} based on increase in biomass and growth rates

Pre-test and final ring test

Pre-test (2009)

- Opportunity for labs to gain experience
- Species – *M. aquaticum* & *M. spicatum*
- Test compounds – 3,5-DCP & 2,4-D
- 11 laboratories
  - both species show similar sensitivity to 3,5-DCP & 2,4-D with low variability between laboratories
  - Shoot length, fresh weight & dry weight provide consistent and reproducible measures of effect.
  - Quality of plant material is critical for achieving reproducible results

Final ring test (2010 to 2011)

- Species – *M. aquaticum* & *M. spicatum*
- Test compounds – 3,5-DCP, isoproturon & trifluralin

Final ring test - Participating laboratories

Laboratory	*Myriophyllum aquaticum*			*Myriophyllum spicatum*		
	3,5-DCP	**Isoproturon**	**Trifluralin**	**3,5-DCP**	**Isoproturon**	**Trifluralin**
Alterra	x	x		x	x	
BASF SE	x	x	x	x	x	x
Bayer CropScience				x	x	x
BioChem Agrar GmbH				x		
Chemex Environmental International Ltd				x	x	
ECT Oekotoxikologie GmbH	x	x				
Eurofins Agroscience Services GmbH	x	x	x	x	x	
Fraunhofer, IME	x					
Harlan Laboratories Ltd				x	x	
IBACON GmbH	x	x	x			
IPO (Organic Chemistry Branch Pszczyna)	x	x	x			
Smithers Viscient	x			x		
Dr.U.Noack-Laboratorien		x				
UBA,				x	x	
University of Serbia	x	x	x			
Total number of tests	**9**	**8**	**5**	**9**	**7**	**2**

Next steps

Final ring test (2010 to 2011)

- Results available by end of 2011
- Preparation of journal paper
- Reported to OECD within next three months
- Evaluated under the OECD test guideline process

Poster in AMEG Session (RP133)

A PROPOSED OECD TEST GUIDELINE FOR THE SUBMERGED, SEDIMENT-ROOTED MACROPHYTE, *MYRIOPHYLLUM* Jo Davies, Syngenta, UK, Peter Dohmen, BASF, Germany and Gertie Arts, Alterra, The Netherlands.