MRID No. 449295-14

DATA EVALUATION RECORD
AQUATIC PLANT EC_{50} TEST
GUIDELINE 123-2 (TIER II)

1. **CHEMICAL:** Metolachlor PC Code No.: 108801

2. **TEST MATERIAL:** CGA-51202 Purity: >99.9%

3. **CITATION:**

Authors:	R.L. Boeri, J.P. Magazu, and T.J. Ward
Title:	Acute Toxicity of CGA-51202 to the Duckweed, *Lemna gibba* G3
Study Completion Date:	September 18, 1997
Laboratory:	T.R. Wilbury Laboratories, Inc., Marblehead, MA
Sponsor:	Novartis Crop Protection, Greensboro, NC
Laboratory Report ID:	1233-NO
MRID No.:	449295-14
DP Barcode:	D260010

4. **REVIEWED BY:** Karl Bullock, M.S., Environmental Scientist,
Golder Associates Inc.
Signature: **Date:** 11/10/99

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist,
Golder Associates Inc.
Signature: **Date:**

5. **APPROVED BY:** Brian Montague, Fisheries Biologist
Environmental Fate and Effects Division, OPP
Signature: **Date:** April 2000

6. **STUDY PARAMETERS:** **Definitive Test Duration:** 14 days
Type of Concentrations: Initial measured

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements for an aquatic plant toxicity test.
Results Synopsis:
EC_{50}: >95.4 ppm ai 95% C.I.: N/A
NOEC: 95.4 ppm ai Probit Slope: N/A

8. **ADEQUACY OF THE STUDY:** **A. Classification:** Core.
B. Rationale: Fulfills guideline requirements.

C. Repairability: N/A

9. **GUIDELINE DEVIATIONS:** The maximum label rate was not reported.

10. **SUBMISSION PURPOSE:** Submitted to support registered uses and fulfill 123-2 guideline requirements.

11. **MATERIALS AND METHODS:**

A. Test Organisms

Guideline Criteria	Reported Information
Species *Lemna gibba*	*Lemna gibba*
Number of Plants/Fronds 5 plants, 3 fronds each	3 plants, 3-4 fronds each, total of 11-12 fronds per replicate
Nutrients Standard formula, e.g. 20XAAP	M-Hoagland's medium without sucrose or EDTA

B. Test System

Guideline Criteria	Reported Information
Solvent	None
Temperature 25°C	23.0 - 24.6°C
Light Intensity 5.0 KLux (±15%)	5.4 KLux
Photoperiod Continuous	Continuous
Test System Static or Renewal	Static
pH Approx. 5.0	Initial: 3.7 - 4.9 Final: 5.7 - 6.2

C. Test Design

Guideline Criteria	Reported Information
Dose range 2X or 3X progression	2X
Doses at least 5	6.0, 13, 25, 50, and 100 mg ai/L
Controls negative and/or solvent	Negative control
Replicates per dose 3 or more	3
Duration of test 14 days	14 days
Daily observations were made?	Counts and observations made on days 1, 4, 6, 8, 11, 13, and 14
Method of Observations	Number of normal and chlorotic fronds
Maximum Labeled Rate	Not reported

12. REPORTED RESULTS:

Guideline Criteria	Reported Information
Initial and 14 day frond numbers were measured?	Yes
Control frond at 14 days ≥2X initial count?	Yes
Initial chemical concentrations measured? (Optional)	Samples were collected at initiation and termination and analyzed by HPLC.
Raw data included?	Yes

Analytical Results

Toxicant Concentration (mg/L)				
Nominal	Hour of Study		Mean Measured (SD)	Percent of Nominal
	0	96		
Control	<2.00	<2.00	-	-
6.0	5.25	2.80	4.0 (1.73)	67
13	12.2	6.33	9.3 (4.15)	72
25	24.6	17.5	21.1 (5.02)	84
50	46.9	37.1	42.0 (6.93)	84
100	95.4	82.2	88.8 (9.33)	89

Dose Response

Initial Measured concentration (ppm ai)	14-day Avg. Number of Normal Fronds	% Inhibition*	14-day pH
Control	142	N/A	6.0
5.25	138	2.8	6.1
12.2	149	-4.9	6.2
24.6	140	1.4	6.2
46.9	133	6.3	6.1
95.4	146	-2.8	5.9

* Compared to the control; negative sign indicates stimulation.

Other Significant Results: No sublethal effects were observed other than the presence of a small number of chlorotic fronds in the control and all treatment groups. No flowers were noted in any group.

Statistical Results:

Statistical Methods: Visual observation for EC_{50}; analysis of variance coupled with Dunnett's test for NOEC.

EC_{50}: >95.4 ppm ai 95% C.I.: N/A

Probit Slope: N/A NOEC: 95.4 ppm ai

13. **VERIFICATION OF STATISTICAL RESULTS:** Williams' test was used to confirm the NOEC. The EC_{50} value could not be calculated because there was at least 94% of the control growth at all tested concentrations.

EC_{50}: >95.4 ppm ai 95% C.I.: N/A

Probit Slope: N/A NOEC: 95.4 ppm ai

14. **REVIEWER'S COMMENTS:** The maximum label rate of the test material is well below the the rate which would result in an aquatic concentration of 95.4 ppm ai when applied on the surface of a 15-cm deep water body.

This study is scientifically sound, and fulfills the guideline requirements. Based on initial measured concentrations, the EC_{50} was determined to be >95.4 ppm ai, the highest concentration tested. The NOEC was determined to be 95.4 ppm ai.

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CGA-51202: Acute Lemna - Growth
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WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Control	3	142.333	142.333	140.000
2	5.25	3	137.667	137.667	140.000
3	12.2	3	149.000	149.000	140.778
4	24.6	3	140.333	140.333	140.778
5	46.9	3	133.000	133.000	140.778
6	95.4	3	146.000	146.000	146.000

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WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Control	140.000				
5.25	140.000	0.125		1.78	k= 1, v=12
12.2	140.778	0.083		1.87	k= 2, v=12
24.6	140.778	0.083		1.90	k= 3, v=12
46.9	140.778	0.083		1.92	k= 4, v=12
95.4	146.000	0.196		1.93	k= 5, v=12

s = 22.902
Note: df used for table values are approximate when v > 20.