

US EPA ARCHIVE DOCUMENT

MRID No. 449295-14

**DATA EVALUATION RECORD
AQUATIC PLANT EC₅₀ 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:

EC₅₀: >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
<u>Species</u> <i>Lemna gibba</i>	<i>Lemna gibba</i>
<u>Number of Plants/Fronds</u> 5 plants, 3 fronds each	3 plants, 3-4 fronds each, total of 11-12 fronds per replicate
<u>Nutrients</u> Standard formula, e.g. 20XAAP	M-Hoagland's medium without sucrose or EDTA

B. Test System

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

C. Test Design

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

12. REPORTED RESULTS:

Guideline Criteria	Reported Information
Initial and 14 day frond numbers were measured?	Yes
Control frond at 14 days \geq2X 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.

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CGA-51202: Acute Lemna - Growth

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WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	ORIGINAL 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. SIG WILLIAMS	TABLE P=.05	DEGREES OF WILLIAMS	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.