

US EPA ARCHIVE DOCUMENT

DATA EVALUATION REPORT
ECOLOGICAL EFFECTS BRANCH

EFED Document



2002031

1. Chemical: Tilt
2. Formulation: CGA-64250 (90.7% a.i.)
3. Study ID: Data Accession No: 072209 ref: 20 *MRS D # 00132939*
Hollister, Terry. 1981. The Effect of CGA-64250 to the Marine Alga (Skeletonema costatum). An unpublished study prepared by EG&G Bionomics for Ciba-Geigy Corp.
4. Study Type: 11-day EC50 with Skeletonema costatum, marine algae
5. Review By: Daniel Rieder
Wildlife Biologist *Daniel Rieder*
Ecological Effects Branch Date: 10/18/84
Review Time: 3 Hrs
6. Reported Results:
11-day EC50 = 21 ppb
95% Confidence Limits = 14-31 ppb
No Observed Effect Level = <18 ppb
7. Reviewers Conclusions:
This study is scientifically sound. It fulfills the guideline requirements for an aquatic plant toxicity EC50. The results show that Tilt is very highly toxic to marine algae.

8. Methods/materialsTest Material: Tilt

Percent active ingredient: 90.7%

Test Organism: Marine algaeSpecies: Skeletonema costatum

Source: BMRL culture

Age/Stage: 8 days old

Test Containers: glass

Size: 125 ml with 50 ml test medium

Conc. per container: 1×10^4

Test Medium: Marine Algal Assay Procedure Medium

Replicates: 3

Test Conditions: static

Illumination: 2,000 lux

Photoperiod: ?

Temperature: 20° C

Solvent: acetone

Controls: untreated and solvent

Measured concentrations: yes at initiation of study

Reference: BMRL Testing Protocol for Static Phytotoxicity Tests with Freshwater Algae, February, 1981.

9. Results:Reported
11-day EC_{50} =21 ppb*

95% Confidence Limits=14-31 ppb

No Observed Effect Level=<18 ppb

* measured test concentrations

Reviewer

21 ppb (moving average method)

20-22 ppb " " "

CONCENTRATION ppb Nominal/Measured*	PERCENTAGE CHANGE AS COMPARED TO THE SOLVENT CONTROL					Dry cell weight day 11
	Increase (+) or decrease (-) in production of Chlorophyll a					
	day 3	day 4	day 7	day 9	day 11	
control	-2	-6	+2	+2	+1	-1
solvent control**	---	---	---	---	---	---
12 / 18	-32	-27	-2	-22	-15	-23
25 / 30	-64	-87	-66	-97	-98	-98
50 / 60	-60	-90	-83	-99	-100	-100
100 / 116	-66	-90	-100	-100	-100	-100
200 / 218	-66	-90	-100	-100	-100	-100

* at initiation of study

** acetone

^aSignificantly less ($P < 0.05$) than the solvent control

10. Statistical Analysis: Dry cell weight was subjected to ANOVA and Williams' method (Williams, 1971) to locate significant differences among treatment means. The 11-day EC_{50} and 95% C.L. were calculated using the Finney probit method (Finney, 1971).

11. Reviewer Evaluation

a. Methods/Procedure: The protocol is generally consistent with the guidelines in Subdivision J, October, 1982.

b. Statistics: Independent statistical analysis was performed and is presented above. It supports the reported results.

c. Discussion/Results: The study results show that Tilt is highly toxic to marine algae.

12. Conclusions

Category: core

REFERENCE

- EG&G Bionomics Marine Research Laboratory. 1981. Static Phytotoxicity Test with Freshwater Algae. 6pp.
- Finney, D. J. 1971. Probit Analysis. Cambridge University Press, London. 333pp.
- Williams, D. A. 1971. A test for difference between treatment means when several dose levels are compared with a zero dose control. Biometrics 27, 103-117