122101

2-20-81

DATA EVALUATION RECORD

1. CHEMICAL: CGA-64250

2. FORMULATION: Technical - 91%

3. CITATION: Thompson, C.(1980) Acute Toxicity of CGA-64250 to Channel Catfish; received 1/28/81 under 100-618; unpublished report prepared by Analytical Biochemistry Laboratories, Inc. for CIBA-GEIGY Corporation, Greensboro, NC (in acc # 244273)

4. REVIEWED BY: Stephen M. Hopkins
Plant Physiologist
Ecological Effects Branch/HED

5. DATE REVIEWED: 2/20/81

6. TEST TYPE: Fish acute LC_{50} - Channel catfish

7. REPORTED RESULTS:

The author calculated that the 96hr LC_{50} of the test material to channel catfish of 2 ppm, but analysis of the measured concentrations results in an LC_{50} of 1 ppm. The true value is assumed to lie between 1 and 2 ppm.

8. REVIEWER'S CONCLUSIONS:

This study is classified as supplemental, and does not meet EPA requirements for a fish acute LC_{50} study using a warm-water fish.

Testing Laboratory Report

A. Test Procedure

Protocol generally followed EPA proposed guidelines of July 10, 1978. Some specifics of note include:

Weight of fish	- 1.9 g ave.
Number of fish	- 10 Per test vessel.
Test vessel size	- 40 Liter glass vessels containing 30 liters each.
Loading	- 0.63 g/liter
Dilution water	- Soft reconstituted well water.
Temperature	- 22° ± 1°C.
Treatment levels	- 0.16, 0.28, 0.5, 0.9, 1.6, and 2.8 ppm, plus a control. Whether solvent or untreated control was not specified.
Chemical analysis	- Actual concentrations of toxicant at test initiation were determined by GLC
Test initiation	- August 18, 1980

B. Statistical Analysis

Mortality was analyzed using the Stephan computerized LC_{50} program.

C. Results

Nominal Concentration	Measured Concentration	Mortality at 96hrs
Control		0
0.16 ppm	0.11 ppm	0
0.28	0.12	0
0.5	0.43	0
0.9	0.74	0
1.6	0.93	10 %
2.8	1.3	100

The author calculated a 96hr LC_{50} of 2 ppm with a 95% confidence interval of 1.6-2.8 ppm. However, the analysis of the test water indicated that some of the concentrations were considerably lower than expected.

Reviewer's Evaluation

A. Test Procedure

The procedure generally followed the 1978 EPA guidelines. Although it was not specified whether the control was a solvent or untreated control, there is little need for concern since the solvent in the treatments was acetone.

B. Statistical Analysis

Mortality was analyzed in EEB using the binomial method, the results of which agreed with the author's findings. However, using the measured toxicant values resulted in an LC_{50} of 1.1 ppm, with a confidence interval of 0.93-1.3 ppm.

C. Results/Discussion

The author calculated that the 96hr LC_{50} of CGA-64250 to channel catfish is 2 ppm, with confidence limits of 1.6-2.8 ppm. However, EEB calculated an LC_{50} of 1.1 ppm with confidence limits of 0.93-1.3 ppm. It is assumed that the true value is somewhere between 1 and 2 ppm.

D. Conclusions

picky picky picky (AH) 3/5/84

1. Category: Supplemental
2. Rationale: Discrepancy between nominal and measured concentrations
3. Repairability: None

3

Channel Catfish 96hr LC_{50} Nominal Concentrations

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
2.8	10	10	100	9.76563E-2
1.6	10	1	10.	1.07422
.9	10	0	0	9.76563E-2
.5	10	0	0	9.76563E-2
.28	10	0	0	9.76563E-2

THE BINOMIAL TEST SHOWS THAT 1.6 AND 2.8 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1.9953

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

Measured Concentrations

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
1.3	10	10	100	9.76563E-2
.93	10	1	10.	1.07422
.74	10	0	0	9.76563E-2
.43	10	0	0	9.76563E-2
.12	10	0	0	9.76563E-2

THE BINOMIAL TEST SHOWS THAT .93 AND 1.3 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1.06139

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.