122804

DATA EVALUATION RECORD

1. CHEMICAL: Avermectin B_1

2. FORMULATION: Technical - 91.4%

3. CITATION: Hollister, T. (1981) The Effect of Avermectin B_1 to Duckweed; received 12/3/81 under 618-EUP-10; unpublished report prepared by EG&G Bionomics for Merck & Co., Inc, Rahway, NJ (in Acc #246358)

4. REVIEWED BY: Stephen M. Hopkins
Plant Physiologist
EEB/HED

5. DATE REVIEWED: 12/15/81

6. TEST TYPE: Growth and Reproduction of Aquatic Plants - Duckweed, Lemna gibba G_3

7. REPORTED RESULTS:

The author demonstrated the following EC values for effects of the test material on frond production:

14 day EC_{10} - 1.5 (1-2.1) ppm
14 day EC_{50} - 3.9 (2.3 - 6.5) ppm
14 day EC_{90} - 10 (5.4-20) ppm

8. REVIEWER'S CONCLUSIONS:

This study is scientifically sound and follows proposed EPA protocol for a study on the effects of the test material on an aquatic macrophyte.. The study has not been categorized due to lack of requirement for this study at this time.

Materials and Methods

The test procedure generally complied with Subpart J guidelines of Nov 3, 1980. Some specifics of note include:

Number of plants - 5 5-day old plants per vessel, 3 vessels per treatment level
Test vessel size - 250 ml culture dishes containing 100ml of medium, and covered with glass tops
Medium - M-Type Hoaglands medium without sucrose or EDTA
Temperature - 25°C
Treatment levels - 1.2, 2.5, 5, 10, and 20 ppm plus untreated and acetone controls

Test dates - July 1-14, 1981

Plants were observed for frond production on days 1-4, 7-11, and 14. Percent inhibition (or stimulation) compared to control was calculated for each treatment observation, as well as 14 day EC_{10}, EC_{50}, and EC_{90}. Frond production at 14 days was subjected to ANOVA and Method of Williams (1971) to determine significant differences among treatment means. EC values were calculated by linear regression.

Results

Concentration (ppm)	Total Number of Fronds at 14 days	% Inhibition at 14 days
20	38 ± 6	91*
10	40 ± 7	90*
5	50 ± 3	88*
2.5	329 ± 14	21*
1.2	384 ± 17	8
Acetone control	404 ± 16	3
Untreated control	416 ± 20	-

* Significantly less ($P \leq 0.05$) than solvent control

The author calculated the following EC values:

14 day EC_{10} - 1.5 (1-2.1) ppm
14 day EC_{50} - 3.9 (2.3-6.5) ppm
14 day EC_{90} - 10 (5.4-20) ppm

Followering was not observed in any treatment.

Validation:

This study is scientifically sound.