4-14-82
Duplicate

DATA EVALUATION

1. CHEMICAL: Cypermethrin

2. FORMULATION: % active ingredient not given

3. CITATION: Edwards, P.J., S.M. Brown, M.J. Hamer, and J.M. Bull (1980) Cypermethrin: acute toxicity to the mayfly, Baetis rhodani. Unpublished report by ICI Plant Protection Division, submitted 12/28/81 by ICI Americas Inc., Wilmington, Delaware.

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. REVIEWED BY: Thomas B. Johnston
Biologist, EEB/HED

. REVIEW DATE: April 14, 1982

. TEST TYPE: 96-hr acute flow-through LC_{50} and EC_{50}

. REPORTED RESULTS: The reported acute 24,48 and 96-hr EC_{50}s of cypermethrin for mayfly larvae are 9.5, 9.2, and 5.7 pptr. The reported 48,72, and 96-hr LC_{50}s were >25, 22.4, and 12.3 pptr.

. REVIEWER'S CONCLUSIONS: This study is scientifically sound, but does not fulfill USEPA guideline requirements for an acute toxicity test using an aquatic invertebrate. With a 48-hr LC_{50} of 9.2 pptr, cypermethrin is very highly toxic to mayfly larvae.

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MATERIALS/METHODS

Methods used generally followed USEPA guidelines. Tests were run at 12°C, rather than the recommended 17°C. The percent active ingredient was not given, but the EC_{50} and LC_{50} values were calculated from mean measured concentrations, rather than nominal values.

STATISTICAL ANALYSES

Data were analyzed by weighted linear regression of the log concentration plotted against logit transformation of % affected and % dead respectively. Abbott's correction was used.

RESULTS

Test 1. 30 mayflies per concentration

Mean Measured Concentrations (pptr)	No. affected/No. Dead 24 hrs	48 hrs	72 hrs	96 hrs
25.2	26/0	30/3	30/11	27/21
12.4	22/0	24/3	30/12	24/10
6.2	3/0	4/2	20/5	6/4
2.7	0/0	0/0	22/0	5/3
1.7	0/0	0/0	2/0	1/0
Control	0/0	1/1	2/1	1/1
EC_{50} = 10.9 pptr		9.5	Not calculated	7.3
LC_{50} = >25 pptr		N/A	26.7	17.1

Test 2. 30 mayflies concentration

22.0	30/7	30/11	25/16	26/19
11.7	22/8	17/4	19/11	22/12
6.0	7/3	9/3	15/5	20/11
3.4	2/2	2/1	4/1	4/3
2.1	0/0	1/1	1/1	1/1
Control	0/0	1/0	0/0	0/0
EC_{50} = 8.3 pptr		9.0	8.0	4.7
LC_{50} = >22 pptr		>22	18.8	9.0

ONCLUSIONS:

Validation Category: Supplemental

Category Rationale: The tests were run at 12°C, rather than the recommended 17°C. Toxicity can vary considerably with changes in temperature. This test is sound, but only gives information on the toxicity of cypermethrin to mayflies at temperatures outside the insect's preferred range.

Category Repairability: This study cannot be repaired to Core.

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