DATA EVALUATION RECORD

1. TEST MATERIAL- Pyrethrins

2. STUDY MATERIAL-

W/W %	
19.71	Pyrethrum Extract (24.6% Pyrethrins)
19.71	Piperonyl Butoxide
24.90	Tergitol
4.74	Aerosol OT
4.74	Oil Yellow G Extra
26.20	Xylene
100.00%	i.e. 4.85% Pyrethrins

3. STUDY TYPE:

Freshwater Fish Acute Toxicity.

Species tested-	Rainbow trout	Salmo gairdneri
	Bluegill sunfish	Lepomis macrochirus
	Channel catfish	Ictalurus punctatus

4. STUDY IDENTIFICATION:

Bridges W.R. and O.B. Cope. 1965. The relative toxicities of similar, formulations of pyrethrum and rotenone to fish and immature stonefiles. Pyrethrum Post 8:3-5.

5. REVIEW BY:

James J. Goodyear
Biologist
Ecological Effects Branch
Hazard Evaluation Division (TS796C)

Signature: James Goodyear
Date: May 3, 1988

6. APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Hazard Evaluation Division (TS796C)

Signature: Raymond W. Matheny
Date: MAY 3 1988

MAY 3 1988

7. CONCLUSIONS:

The study does not fulfill the registration requirements because it does not meet the standards of the

guidelines for acute toxicity to freshwater fish and was not done on crushed pyrethrum flowers.

8. RECOMMENDATIONS- N/A.

9. BACKGROUND:

For the registration of crushed pyrethrum flowers.

10. DISCUSSION OF INDIVIDUAL TEST- N/A.

11. MATERIALS AND METHODS:

A. Test Conditions:

Animals- The fish were obtained from a hatchery and held one to two weeks. The range of their weights were: Trout 0.2 - 0.4g; Catfish 0.4 - 0.6g and Bluegill 0.5 - 0.8g. Food was withheld for two to three days.

Containers- Five gallon glass Buckets with 15 liters of water.

Solution- "Moderately soft water" (methyl orange alkalinity of 35 mg/l)

Temperature- Bluegills and Catfish- 75^{o} F (23.9^{o} C) $\pm$ 1^{o} F; Trout- 55^{o} F (12.8^{o} C) $\pm$ 1^{o} F.

Duration- 96 hours.

pH- 7.1.

Dissolved O^2- The experimenters did not aerate the water or measure the DO, but believe the "DO to have been adequate."

B. Dose- Static bioassay using nominal concentrations.

C. Design:

There were no control or inert ingredients controls. "In definitive tests, fish were exposed to four or five concentrations...", but the concentrations are not given. Each level had two buckets of ten fish each.

D. Statistics:

The paper states that, "results were plotted on logarithmic-graph probability paper."

Litchfield, J.T. Jr. and F. Wilcoxon. 1949. A simplified method of evaluating dose-effect experi-

ments. Journal of Pharmacology and Experimental Therapeutics 96:99-113.

12. REPORTED RESULTS:

Rainbow Trout:

Test	LC_{50}	95% C.I.
24 hours	56 ppm	49-64 ppm
48 hours	54 "	48-60
96 hours	54 "	48-60 "

The NOEL was not given.

Channel Catfish

Test	LC_{50}	95% C.I.
24 hours	96 ppm	80-108 ppm
48 hours	82 "	71-93 "
96 hours	80 "	70-92 "

The NOEL was not given.

Bluegill

Test	LC_{50}	95% C.I.
24 hours	80 ppm	72-89 ppm
48 hours	74 "	64-86 ppm
96 hours	74 "	64-86 ppm

The NOEL was not given.

13. STUDY AUTHORS' CONCLUSIONS/QA MEASURES:

There was no QA statement. The authors concluded that they had determined the LC_{50}s of three fish species for a formulation of pyrethrins.

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF THE STUDY:

A. Test Procedures:

The procedures were not in accordance with the guidelines for toxicity tests for freshwater fish.

B. Statistical Analysis:

Since the raw data was not supplied, the LC_{50}s could not be calculated.

C. Discussion/Results:

This study was not done with the chemical for which registration is sought: it was done on a formulated

product. Therefore, it does not address any of the questions which must be answered for registration.

D. Adequacy of the Study:

Classification- Invalid.

Rational- The test was not done on the product for which registration is sought; there were no controls or inert ingredient controls; the raw data was not supplied; the solution was not analyzed at 24-, 48- and 96-hours even though it had a solvent and several inert ingredients and the authors suspected that one of those ingredients contributed to the mortality; the water temperatures were too high for the bluegills and the catfish; some of the fish were too small; some of the fish were not acclimated long enough; food was not withheld long enough; the dissolved oxygen was not measured and; the dose levels were not given.

Repair- N/A.

15. COMPLETION OF ONE-LINER FOR STUDY- No (no data).

16. CBI APPENDIX- N/A.

DATA EVALUATION RECORD

1. TEST MATERIAL- Pyrethrum.

2. STUDY MATERIAL- None.

3. STUDY TYPE- Pharmacological.

4. STUDY IDENTIFICATION:

   Camougis, G. and W.M. Davis. 1971. Comparative study of the neuropharmacological basis of action of pyrethrins. Pyrethrum Post 11:7-14.

5. REVIEW BY:

   James J. Goodyear — Signature: James Goodyear
   Biologist
   Ecological Effects Branch — Date: May 3, 1988
   Hazard Evaluation Division (TS796C)

6. APPROVED BY:

   Raymond W. Matheny — Signature: Ray W. Matheny
   Head, Section 1
   Ecological Effects Branch — Date: MAY 3 1988
   Hazard Evaluation Division (TS796C)

7. CONCLUSIONS- This is not related to EEB's review process.

8. RECOMMENDATIONS- N/A.

9. BACKGROUND- Registration of crushed pyrethrum flowers.

10. DISCUSSION OF INDIVIDUAL TEST- N/A.

11. MATERIALS AND METHODS- N/A.

12. REPORTED RESULTS- N/A.

13. STUDY AUTHORS' CONCLUSIONS and QA MEASURES- N/A.

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF THE STUDY:

    This study is not on the ecological effects of a pesticide.

15. COMPLETION OF ONE-LINER FOR STUDY- No.

16. CBI APPENDIX- N/A.

DATA EVALUATION RECORD

1. TEST MATERIAL- Pyrethrum.

2. STUDY MATERIAL- None.

3. STUDY TYPE- Physiological.

4. STUDY IDENTIFICATION:

   Dessaith D, L.K. Cutkomp, and R.B. Koch, 1973. The effect of pyrethrins on ATPases cockroach and blue gillfish [sic]. Pyrethrum Post 12:70-75.

5. REVIEW BY:

   James J. Goodyear — Signature: James Goodyear
   Biologist
   Ecological Effects Branch — Date: May 3, 1988
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6. APPROVED BY:

   Raymond W. Matheny — Signature: Ray W. Matheny
   Head, Section 1
   Ecological Effects Branch — Date: 5/3/88
   Hazard Evaluation Division (TS796C)

7. CONCLUSIONS:

   This article is not related to EEB's review process.

8. RECOMMENDATIONS- N/A.

9. BACKGROUND:

   For the registrationed crushed pyrethrum flowers.

11. MATERIALS AND METHODS- N/A.

12. REPORTED RESULTS- N/A.

13. STUDY AUTHORS' CONCLUSIONS/QA MEASURES- N/A.

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF THE STUDY:

    This study is not on the ecological effects of a pesticide.

15. COMPLETION OF ONE-LINER FOR STUDY- No.

16. CBI APPENDIX- N/A.

DATA EVALUATION RECORD

1. TEST MATERIAL- Pyrethrum.

2. STUDY MATERIAL- 20% Pyrethrum Extract
? Propylene Glycol

3. STUDY TYPE- Avian Dietary Single-dose Oral LD_{50}.
Species tested-
Blue Rock Pigeon- Columba livia intermedia

4. STUDY IDENTIFICATION:
Saxena, S.C. and P.P. Bakre. 1977. Toxicity of pyrethrum to Blue Rock Pigeon [sic]. Pyrethrum Post 14:47-48.

5. REVIEW BY:
James J. Goodyear Signature: James Goodyear
Biologist
Ecological Effects Branch Date: May 3, 1988
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6. APPROVED BY:
Raymond W. Matheny Signature: Ray W. Matheny
Head, Section 1
Ecological Effects Branch Date: MAY 3 1988
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7. CONCLUSIONS:
This study does not relate to the registration process.

8. RECOMMENDATIONS- N/A.

9. BACKGROUND:
For the registration of crushed pyrethrum flowers.

10. DISCUSSION OF INDIVIDUAL TEST- N/A.

11. MATERIALS AND METHODS:

A. Test animals:

An unstated number of wild caught pigeons were

acclimated for ten days. Their condition, size, maturity and breeding state were not given.

B. Dose- Intramuscular injection of 20% pyrethrum extract and propylene glycol

C. Design:

There were an unknown number of birds in each of five nominal dose levels; 10,20,30,40 and 50 mg/kg body weight.

D. Statistics- The LD_{50} was not determined.

12. REPORTED RESULTS- None reported.

13. STUDY AUTHORS' CONCLUSIONS/QA MEASURES:

No LD_{50}s (mg/kg) were given and there were no statements about quality assurance.

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF THE STUDY:

A. Test Procedures:

The procedures were not in accordance with the guidelines for avian single-dose oral LD50.

B. Statistical Analysis:

There were no raw data; therefore LD_{50}s could not be calculated.

C. Discussion/Results:

This study does not address any questions which must be answered for registration.

D. Adequacy of the Study:

Classification- Invalid.

Rational- The Blue rock pigeon is not a standard species; there is insufficient information on the experimental subjects; it is not clear what "20% pyrethrum extract" means; no raw data is supplied; an LD_{50} is not presented and; there is no requirement for an intramuscular LD_{50}

Repair- N/A.

15. COMPLETION OF ONE-LINER FOR STUDY- No.

16. CBI APPENDIX- N/A.

DATA EVALUATION RECORD

1. TEST MATERIAL- Pyrethrins.

2. STUDY MATERIAL:

"Pyrethrum powder containing 1.3% pyrethrums".

It is not known if this means 1.3% pyrethrum flowers, 1.3% of the chemicals pyrethrin I and II or 1.3% of all six pyrethrin chemicals.

3. STUDY TYPE - Avian Dietary Single-dose Oral LD_{50}.

Species tested- House sparrow (Passer domesticus).

4. STUDY IDENTIFICATION:

Saxena, P. and S.C. Saxena. 1973. Effect of pyrethrum on body and organ weights, food consumption, and faeces production of the house sparrow, Passer domesticus. Pyrethrum Post, 12:76.

5. REVIEW BY:

James J. Goodyear Signature: James Goodyear
Biologist
Ecological Effects Branch Date: May 3, 1988
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6. APPROVED BY:

Raymond W. Matheny Signature: Raymond W. Matheny
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Ecological Effects Branch Date: MAY 3 1988
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7. CONCLUSIONS:

This study does not fulfill any of the registration requirements.

8. RECOMMENDATIONS- N/A.

9. BACKGROUND- Registration of crushed pyrethrum flowers.

10. DISCUSSION OF INDIVIDUAL TEST- N/A.

11. MATERIALS AND METHODS:

A. Test animals:

The source, condition, size, maturity, breeding state and length of conditioning are not mentioned.

B. Dose:

Doses 26,39 and 52 mg pyrethrins/kg were administered orally.

C. Design- An unstated number of birds were caged singly.

D. Statistics- The LD_{50} was not calculated.

12. REPORTED RESULTS- Not reported.

13. STUDY AUTHORS' CONCLUSIONS/QA MEASURES- None.

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF THE STUDY:

A. Test Procedures:

The procedures were not in accordance with the guidelines for avian single-dose oral LD50.

B. Statistical Analysis:

No raw data was supplied, therefore, the LD_{50} was not calculated.

C. Discussion/Results:

This study does not address any of the questions which must be answered for registration.

D. Adequacy of the Study:

Classification- Invalid.

Rational- The sparrow is not a standard species; there is no information on the experimental subjects; the test material is not clear: no raw data is supplied and an LD_{50} is not provided.

Repair- N/A.

15. COMPLETION OF ONE-LINER FOR STUDY- No.

16. CBI APPENDIX- N/A.