1. CHEMICAL: Avermectin

2. FORMULATION: L - 638,384

L - 640,806

L - 676,863

3. CITATION: Atkins, E.L. 1980. Bee toxicity dusting test summary. Tab C2e in EPA Acc. No. 252115. Submitted by Merck, Sharp and Dohme, Dec. 28, 1983.

4. REVIEWER: Allen W. Vaughan
Entomologist
EEB/HED

5. DATE REVIEWED: February 7, 1984

6. TEST TYPE: Bee toxicity

A. Test species: Honey bee (Apis mellifera)

7. REPORTED RESULTS: When test bees were exposed to direct contact, results were as follows:

L - 638,384: LD_{50} = 0.408 micrograms/bee
L - 640,806: LD_{50} = 0.861 micrograms/bee
L - 676,863: LD_{50} = 0.542 micrograms/bee

These data indicate that Avermectin is highly toxic to honey bees.

8. REVIEWER'S CONCLUSIONS: This study is scientifically sound, and shows Avermectin to be highly toxic to honey bees.

Materials and Methods

Test Procedure

L - 638,384 and L-640,806 were impregnated into a non-toxic pyrolite dust diluent. Test bees were exposed to direct application, using a bell-jar duster. L-676,863 was diluted with distilled water and applied topically to the prothorax of CO_2 anesthetized bees. All bees were then removed to holding cages. Mortality evaluations were made at 24, 48, 72, and 96 hours after application.

Statistical Analysis

Analysis of the data was performed to enable the author to determine LD_{50} values from either dosage - mortality curves or from LC_{50} values.

Discussion/Results

All 3 formulations of Avermectin tested highly toxic to honey bees.

Reviewer's Evaluation

A. Test Procedures

Use of pyrolite dust as a diluent is the standard procedure for this author. The use of water (as a diluent for one formulation) is not advisable. Acetone would be the solvent of choice, if solubility allows use of this solvent.

B. Statistical Analysis

Analysis as performed by the author was assumed to be valid. No validation was performed by EEB.

C. Discussion/Results

This study is scientifically sound.