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ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/G 6/20
TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)
JUN 81 M H WEEKS; M J TOPPER
USAEHA-75-51-0298-81

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**UNITED STATES ARMY
ENVIRONMENTAL HYGIENE
AGENCY**

ABERDEEN PROVING GROUND, MD 21010

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE
INSECT REPELLENTS AI3-37173-b AND AI3-37175-b
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS,
STUDY NOS. 75-51-0298-81 AND 75-51-0299-81
MARCH 1981

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U S ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

Mr. Weeks/11h/AUTOVON
584-3627

9 JUN 1981

HSE-LT/WP

SUBJECT: Topical Hazard Evaluation Program of Candidate Insect Repellents
AI3-37173-b and AI3-37175-b, US Department of Agriculture
Proprietary Chemicals, Study Nos. 75-51-0298-81 and 75-51-0299-81,
March 1981

Executive Secretary
Armed Forces Pest Management Board
Forest Glen Section, WRAMC
Washington, DC 20012

A summary of the pertinent findings and recommendations of the inclosed report follows:

A preliminary hazard evaluation of AI3-37173-b and AI3-37175-b was performed by means of a photochemical skin irritation study in rabbits. A 25-percent ethanol solution of AI3-37173-b caused a positive photochemical response, while that of AI3-37175-b did not cause a photochemical skin reaction. It was recommended that AI3-37173 not be approved, while AI3-37175 should be approved for further testing as a candidate insect repellent.

FOR THE COMMANDER:

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U S ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE
INSECT REPELLENTS A13-37173-b AND A13-37175-b
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS
STUDY NOS. 75-51-0298-81 AND 75-51-0299-81
MARCH 1981

1. AUTHORITY. Memorandum of Understanding between the US Army Environmental Hygiene Agency, the US Army Health Services Command; the Department of the Army, Office of The Surgeon General; the Armed Forces Pest Control Board; and the US Department of Agriculture, Agricultural Research, Science and Education Administration, titled, Coordination of Biological and Toxicological Testing of Pesticides, effective 23 January 1979.

2. REFERENCES.

a. Letter, HSE-LT/WP, this Agency, 30 July 1980, subject: Topical Hazard Evaluation Program of Candidate Insect Repellents Study Nos. 75-51-0025-80, 75-51-0036-80 thru 75-51-0038-80, 75-51-0043-80, 75-51-0044-80, 75-51-0048-80 thru 75-51-0055-80, 75-51-0065-80, 75-51-0076-80, 75-51-0077-80, 75-51-0085-80, 75-51-0100-80, 75-51-0117-80, 75-51-0119-80, 75-51-0120-80, 75-51-0123-80, 75-51-0127-80, 75-51-0128-80, 75-51-0172-80 thru 75-51-0176-80, 75-51-0197-80 thru 75-51-0202-80, 75-51-0204-80, 75-51-0205-80, 75-51-0907-80, May 1976 - April 1980, ADA 088302.

b. Toxicology Division Procedural Guide, US Army Environmental Hygiene Agency (USAEHA), 1972, revised 1976.

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of the candidate insect repellents A13-37173 and A13-37175, USDA proprietary chemicals.

4. BACKGROUND. The subject candidate insect repellents in a previous study (see paragraph 2a) caused a photochemical irritant response in rabbits but no skin or eye irritation and no sensitization reactions. Several closely related chemicals were negative in the same study and it was hypothesized that trace chemical contaminants might be the cause of the phototoxicity. Therefore, the chemicals were redistilled, put through a charcoal purification treatment, and resubmitted for additional photoirritant testing.

5. PROCEDURE. A photochemical skin irritation study of the candidate repellents was performed using New Zealand White rabbits. The test consisted of the application of 0.05 mL of a 25-percent (w/v) solution of each chemical and a 10-percent (w/v) Oil of Bergamot solution (positive control) in 95-percent ethyl alcohol to the intact skin of six rabbits. Five minutes after application, the rabbits were exposed to UV light (365 nm) for 30 minutes at a distance of 10-15 cm. Following UV exposure, 0.05 mL of test chemical, positive control, and diluent were applied to additional skin areas to serve as unirradiated control sites. Application areas were checked for skin irritation at 24, 48 and 72 hours.

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Study Nos. 75-51-0298-81 and 75-51-0299-81, Mar 81

6. FINDINGS.

a. A 25-percent solution of AI3-37173-b caused a positive photochemical irritant reaction similar to that previously reported (reference, paragraph 2a).

b. The 25 percent ethanol solution of AI3-37175-b did not cause a positive photochemical skin reaction under repeat test conditions. However, this solution did cause moderate erythematous reactions on both non-UV and UV skin sites.

c. Positive control application and irradiation caused greater irritant effects than on unirradiated skin areas.

7. CONCLUSION. Chemical purification of AI3-37173 did not eliminate or reduce its photochemical potency, but did reduce that of AI3-37175.

8. RECOMMENDATIONS. Under the provisions of the Memorandum of Understanding (paragraph 1), it is recommended that AI3-37173 not be approved for further testing. AI3-37175 should be approved for further testing as a candidate insect repellent, but persons experiencing irritation when working with ethanol solutions of the chemical should wash the site with copious amounts of water.

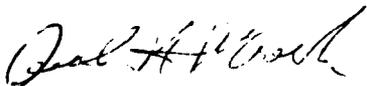


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