MRID # 00013561

DATA EVALUATION RECORD

TRICHLORFON

Neurotoxicity in Chicken

CITATION: Witter RF, Gaines TB. 1963. Relationship between depression of brain or plasma cholinesterase and paralysis in chickens caused by certain organic phosphorous compounds. Biochem. Pharmacol. 12:1377-1386.

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DATA EVALUATION RECORD

STUDY TYPE: Neurotoxicity in chicken.

CITATION: Witter RF, Gaines TB. 1963. Relationship between depression of brain or plasma cholinesterase and paralysis in chickens caused by certain organic phosphorous compounds. Biochem. Pharmacol. 12:1377-1386.

ACCESSION NUMBER: Not available.

MRID NUMBER: 00013561.

LABORATORY: Communicable Disease Center, US Public Health Service, Atlanta, GA.

TEST MATERIAL: Dipterex [50 percent purity, the technical material was not used].

PROTOCOL:

1. The test compound used was Dipterex, with a 50 percent purity obtained from Chemagro Corporation. [It was not stated whether this material was a formulation].

2. The test animals were female chickens of a "sex-linked strain," weighing 2.5 to 3.0 kg.

3. The chicken were administered orally a single dose of atropine at 15 mg/kg, and 15-20 minutes later treated with an aqueous solution of the test material administered subcutaneously in a single dose at levels of 50 to 500 mg/kg.

4. The animals were observed daily for pharmacotoxic signs, and for their ability to stand or walk. Cholinesterase was measured in plasma or homogenates of the brain [both apparently from the same animal]. Pseudocholinesterase was measured with butyryl choline and true cholinesterase with acetyl-β-methyl choline.

RESULTS:

This report evalutes the "paralytic" effects [neurotoxicity] of several chemicals, with Dipterex being used as one of two chemicals with "nonparalytic" effects. The approximate subcutaneous LD_{50} was 125 mg/kg and the lowest dose producing cholinergic effects was 50 mg/kg. At a 90 mg/kg dose there was no paralysis but leg weakness for 1 or 2 days; there was a small weight loss and 1 of 8 chickens died. Cholinesterase levels in plasma and brain dropped to about 20 percent of control levels

in one day and then recovered. The half-life of acetylcholinesterase regeneration was 6 to 7 days and for butyrylcholinesterase 13 to 15 days. Reactivation is probably due to synthesis of new enzyme.

CONCLUSIONS:

The report does not specify whether the test compound was a formulated product and if dose levels were corrected for the active ingredient. Therefore, a NOEL for Dipterex cannot be determined from the data.

CORE CLASSIFICATION: ~~Invalid~~ Supplementary. The test material used was not of a technical grade.