

US EPA ARCHIVE DOCUMENT

GS-0104079

TOXICOLOGY BRANCH: DATA REVIEW

Chemical: Trichlorfon (TCF)

Caswell No.: 385

Shaughnessey No.: 057901

Study Type: Acute (delayed) Neurotoxicity in Hens

Citation: Johnson, M.F. 1970. Organophosphorus and other inhibitors of brain neurotoxic esterase and the development of delayed neurotoxicity in hens. Biochem. J. 120:523-531

Accession No./MRID No.: GS-0104-079 (RS)

Sponsor/Contracting Lab.: N/A (Published article)

Report No./Date: N/A

Test Material: "Dipterex" (Baywood Chemical, Suffolk, U.K.), purity of a.i. not specified.

Procedures: Adult hens were paired by weight and given subcutaneous injections of either a single 200 mg/kg dose of Dipterex or a 200 mg/kg dose followed 3 days later by an additional 100 mg/kg dose, and observed for 3 weeks for signs of neurotoxicity. Some treated hens (number not stated) were sacrificed 24 hours after dosing, and homogenates of brain assayed at 25°C for "neurotoxic esterase" activity. Esterase activity was calculated as a percentage of the esterase activity measured in the brain of a "normal" (presumably untreated, but not stated) hen assayed at the same time.

Results: A single 200 mg/kg dose of Dipterex produced a 68% inhibition of "neurotoxic esterase" in hens sacrificed 24 hours after dosing, but no signs of neurotoxicity were observed in others 3 weeks after dosing. Although the level of inhibition was the same in hens given doses of 200 ~~mg/kg~~ and 100 mg/kg Dipterex 3 days apart, one of two birds exhibited <sup>plus</sup> ataxia during a 3-week observation period.

Conclusions: Although the results of this study suggest that an esterase is involved in delayed neurotoxicity produced by trichlorfon, the study as reported is inadequate on several points. The number of hens treated with test substance was insufficient. Assays of this type are normally performed in triplicate at 37-38°C, but the author performed the assays in duplicate at 25°C and provided no rationale for deviating from standard procedures. The actual values for the nmoles of phenol produced/minute/g brain tissue in treated animals were not reported. The observation period for signs of neurotoxicity was very short. No statistical analysis was performed.

Core Classification: Supplementary Data

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