

- 53 Pesticides—The Saskatchewan Experience. N. Williams.
Can. J. Public Health 55, 216-220 (May, 1964).

The author discusses the use of several pesticides in agriculture and the hazard to health involved in their application. He refers to an active educational program employed to ensure the safe use of pesticides. Reference is also made to a program whereby all information pertaining to toxicological properties of new pesticides is relayed to physicians so that they may quickly diagnose cases of pesticide poisoning. -- Public Health Eng. Absts.

- 54 Toxicity and Metabolism of Dieldrin in Rats. D. F. Heath and M. Vandekar.
Brit. J. Ind. Med. 21, 269-279 (Oct. 1964).

The main constituent of the insecticide dieldrin has been studied in male and female rats. The LD₅₀s depend on the route of injection and, after intravenous infusion, on the rate of infusion. After oral injection of a 4% solution in arachis oil, deaths take place within 6 hours or from 2 to 7 days later; but the first convulsion occurs at 40 min. over a wide range of doses. For further studies Cl-36-dieldrin was used. Absorption from the gastrointestinal tract varies with the vehicle and is via the portal vein, not the thoracic lymph duct. Distribution is initially general, but within a few hours of injection it is heavily in favor of fat. Excretion of Cl-36 averages about 5% per day. It is markedly increased by a restriction of diet, which reduces the body fat. From the cannulated bile duct, excretion accelerates as the rat loses weight, exceeding 10% per day after a few days. Only 3% of the Cl-36 is excreted as dieldrin unless the bile is cannulated, when 10% may be excreted. The remainder is in metabolites, 90% in the feces and 10% in the urine. Many metabolites have been demonstrated but not identified. The most important, containing about 60% of the total Cl-36, is excreted in the bile, probably as a glucuronide and reconstituted in the intestine before being excreted in the feces. From these findings one can interpret many of the toxic effects of dieldrin, including the effects of starvation on toxicity and the prolonged sensitization to a second dose. (Barnes and Heath, 1964) in terms of the low solubility of dieldrin in water, its high solubility in fat, and its mobilization when fat is utilized. Toxic effects are related to the dieldrin mobilized; there is no need to postulate that dieldrin produces a long-lasting lesion in the central nervous system. The findings and conclusions are shown to be relevant to the toxic effects of dieldrin in man.

-- Authors' abst.

- 55 Some Toxic Effects of Dieldrin in Rats. J. M. Barnes and D. F. Heath.
Brit. J. Ind. Med. 21, 280-282 (Oct. 1964).

The oral toxicity of dieldrin in rats depends upon its concentration in the vehicle (arachis oil). It is increased by a previous restriction of diet, leading to a loss of weight. Two equal doses given within 3 weeks of each other are more toxic than the sum of the 2 given as a single dose.

-- Authors' abst.

- 56 A Blood Test Diagnostic of Exposure to Aldrin and Dieldrin. V. K. H. Brown, C. G. Hunter, and A. Richardson. Brit. J. Ind. Med. 21, 283-286 (Oct. 1964).

The findings of a diagnostic blood test for the presence of hexachloro-epoxy-octahydro-dimethanonaphthalene (HEOD) performed on whole blood obtained from operatives of plants manufacturing two chlorinated hydrocarbon insecticides, aldrin and dieldrin, and formulating products containing them and from dogs experimentally exposed to dieldrin have been reported. When clinical signs of poisoning were present, the concentration of HEOD in the blood was more than 16.0-17.0 micrograms/100 g. blood. In the absence of clinical signs of intoxication the concentration of HEOD in the blood was less than these values. However, the concentration of HEOD found in several operatives and in 2 dogs who were without signs of intoxication was above these values. It is suggested that there is a concentration of HEOD in the blood of man and dog which is a threshold for intoxication. The value for the threshold concentration may be near 15.0-20.0 micrograms/100 g. blood. An individual man or dog with a concentration of HEOD in the blood greater than the threshold is in a critical condition requiring some factor or factors not yet determined to precipitate intoxication. The use of this blood test will assess the severity of occupational exposure and support the diagnosis in suspected intoxication.

-- Authors' abst.