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Data on ingestion and percutaneous entry of 2,4-D and 2,4,5-T have been reported in the literature. Pertinent studies are summarized below.

A. Ingestion of Phenoxy Herbicides

Kohli et al (46) in two separate studies gave purified 2,4-D and 2,4,5-T in capsules to human volunteers. Each herbicide was orally administered to six men as the acid at a dose level of 5 mg herbicide per kg body weight (mg/kg). The 2,4-D was quickly absorbed and appeared in the plasma within one hour after ingestion. Seventy-five percent of the administered dose was excreted unchanged in the urine within 96 hours (h). The 2,4,5-T was also readily absorbed, being present in the plasma one hour after ingestion. After 96 h, 63 percent to 72 percent of the herbicides had been excreted unchanged by the kidney. Plasma levels peaked between seven and twenty-four hours for both 2,4-D and 2,4,5-T and the half-lives for plasma clearance were 33 and 18 h respectively. In a study by Saueroff et al (70) in 1977, five male humans ingested 5 mg/kg of 2,4-D. Essentially all was absorbed from the gastrointestinal tract. It was eliminated from the plasma with an average half-life of 11.6 hours and from the urine with an average half-life of 17.7 hours. Eighty-two and three tenth percent was excreted unchanged and 12.8 percent in a conjugated form for a 95.1 percent total recovery. Utilizing this rate of clearance, 99 percent of the steady state would be reached in about three days making body accumulation of repeated exposure unlikely.

Milbey et al (2) applied ^{14}C -2,4-D at the rate of 4 $\mu\text{g}/\text{cm}^2$ to the forearms of six normal male volunteers. The volunteers were requested not to wash the site of application for 24 hours. Urine samples were collected in a metabolic fashion for five consecutive days. The urine aliquots were analyzed for ^{14}C and the results were expressed as five-day urinary recovery in percent of dose applied to the skin. A total of 5.8 percent of the 2,4-D dose was recovered during the five day period.

LITERATURE Sources:

Data on the percutaneous absorption of 2,4-D and 2,4,5-T are available from studies by Milby et al (2), Lavy (1), Herbicide of Orange, and data on the chemistry of formulations, and industrial hygiene data from Project PACER NO have been published by Young et al. (3)

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