DDVP (O,O-dimethyl 2,2-dichlorovinyl phosphate) has been known as a versatile insecticide. It is being used as a contact and systemic insecticide due to its penetrant and volatile properties (ANONYMOUS, 1968). It has been used against a variety of pests in agriculture, in household and public health programmes and also in the disinfection of aircrafts (WINTER, 1960; RASMUSSEN et al., 1963; STEIN et al. 1966; DURHAM et al., 1959). The most common and important route of exposure during spray operation and in accidental spillage of pesticides is skin. DDVP is quickly absorbed by the skin and also by other routes. The rate of absorption by skin is greatly influenced by hot and humid weather as in the tropical countries. Since skin irritations are rare, cases of accidental poisoning by percutaneous absorption frequently remain unnoticed.

Extensive studies have been made by GILLETT et al., (1972) to evaluate the possible human health hazards by DDVP resin strips. They observed that DDVP did not induce developmental effects, mutagenicity, teratogenicity and carcinogenicity, at sublethal dosages. In contrast, reports of LOFROTH (1970) and KRAUSE and HOMOLA (1974) have shown that DDVP induces cellular changes. The rationale for the present study is, therefore, to inquire whether prolonged percutaneous absorption of DDVP has any effect on the male gonadal system, besides skin. Male gonad in mammals is a complex system having both endocrine and exocrine functions (a source for both testosterone and gamete formation). Since testis has a variety of cells which are extremely sensitive to changes in its environment; we considered it interesting to report here our findings on the action of DDVP on the skin and testis of rat.

**EXPERIMENTAL**

**Material:** DDVP (96.3% purity) was obtained from M/s CIBA (India).
Animals and treatment

Sixty colony bred male albino rats of Industrial Toxicology Research Centre's colony (150 ± 10 g) were used. The animals were housed under conventional conditions and were maintained on ad libitum pellet diet and water during the present studies. The animals were divided into two groups of 48 (Group I-experimental) and 12 (Group II-control) respectively. The hair on the lateroabdominal area of approximately 4 x 4 cm of all animals were clipped off by animal grooming clipper ("OSTER" model 5) and cleaned with ethanol-acetone(1:1) mixture.

DDVP (21.4 mg/kg) in 0.5 ml ethanol (50%) or 0.5 ml ethanol alone was later applied slowly on the specified area by means of 1 ml graduated pipette fitted to a valvette. Animals of group I and group II were treated daily, 5 days a week, for 13 weeks. 48 animals of group I were killed (8 each) at intervals of 7, 15, 30, 45, 60 and 90 days; two animals each were similarly killed from group II. Skin and testes were fixed in Bouin's fluid. After routine processing the tissues were embedded in paraffin. Sections were cut at 6 μ thickness and stained in haematoxylin and eosin for histopathological examination.

RESULTS

Gross pathology

During autopsy gross pathological examination was carried out on all animals. Except for the spontaneous death of 4 animals on day 5 of the serial painting, none of the animals showed symptoms of insecticide poisoning nor died. Macroscopic examination of skin throughout the 90 day study did not show any sign of dermatitis or other skin lesions.

Microscopic study

Microscopic examination of DDVP treated rat skin, did not show any pathological changes. However, certain cellular changes were more marked in the epidermis of the DDVP treated rat skin in comparison to those of control animals after 90 days. But for the vacuolization of epidermal cells and thinning of the epidermis there were no noticeable histopathological damage due to DDVP in any of the animals (Figs. 1,2).