ABSTRACT

The aim of this work was to evaluate the effect of the herbicide Propanil (3',4'-dichloropropinanilides) – (DCPA) on the reproductive out come in female rats when exposed during early pregnancy.

The LD_{50} values drived from this study falls between 200 mg kg^{-1} and 2000 mg kg^{-1} and this tallies with the already ascertained LD_{50} value of this herbicide.

Three doses of Propanil [350 mg kg^{-1} (n = 12); 175 mg kg^{-1} (n = 12) and 87.5 mg kg^{-1} (n = 10)] were orally administered to groups of pregnant rats from days one to three of pregnancy. And also high dose of Propanil was administered for days one to two (n = 10) and day one (n = 10) of pregnancy and their reproductive out come was determined. The reproductive parameters measured and calculated were width and length of embryos, intra-embryonic distance, number of implants, pre-implantation loss, post-implantation loss, gestation length, number and colour of corpora lutea, implantation index, litter index, gestation index, live birth index, number of pups borne, quantal pregnancy. The effects on blood pressure, rate of heart beat, rectal temperature, food and water consumption and blood parameters were also monitored.

Except for a slight increase in respiratory rate, the overall threat to maternal toxicity due to the administered doses of Propanil was not severe. The food and water consumption, gain in body weight, blood pressure, rate of heart beat and blood parameters were not affected by the three doses of

Propanil administered. There was however a significant reduction in the number of uterine implants, total number of pups born and litter index with high and middle dose for three days and high dose treated rats for two days.

In rats with high dose (when given on days one to three and days one to two of pregnancy) and middle dose (when given on days one to three of pregnancy), Propanil caused a significant increase in pre-implantation losses. This suggested that Propanil may have affected the levels of oestrogen and progesterone as reported with the other members of this chemical group. These effects were accompanied by a significant elevation in post-implantation losses and number of dead conceptuses. The fact that they are highly lipophilic, poorly ionized agents and of low molecular weight contributes to easy passage across the placental membranes giving rise to fatal effects.

If this data were applicable to humans then it indicates that exposure to Propanil during early gestation may be hazardous in pregnancy.