ANTIFERTILITY EFFECT OF 1,2-DIETHYL-1,3-*BIS*-(*P*-METHOXYPHENYL)-1-PROPENE IN MICE.

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1,2-DIETHYL-1,3-*bis*-(*p*-methoxyphenyl)-1-propene is a non-steroidal agent synthesized by the Central Drug Research Institute, Lucknow. It inhibits pregnancy in rats when administered orally[1], probably due to its estrogenic mode of action[2]. The present investigation deals with its anti-implantation action in mice.

The preparation of various standard doses of the test compound and its oral administration was described earlier[1,2]. Anti-implantation activity of the compound in mice was assayed by a well-established method[3,4]. Female adult Swiss mice (25-35 g) were selected from the animal colony of the Institute. These mice were mated with males of proven fertility. The day on which the vaginal smears showed the presence of spermatozoa with thick vaginal plug was considered as day 1 of pregnancy. The drug was administered for 5 days from day 1 of pregnancy and animals were laparotomized on day 10 of pregnancy and number of implantation sites were observed. In another experiment, a single dose of drug was administered on either of the day during 1-5% and laparotomy was performed on day 10 to observe implantation sites. Controls of each set were maintained and received vehicle only.

Daily administration of the compound at various doses during days 1-5% significantly inhibited pregnancy in mice and minimum effective dose was found to be 1 mg/kg body weight (table 1). Single dose of the

TABLE 1

Anti-implantation activity of 1,2-diethyl-1-3-bis (p-methoxyphenyl)- 1-propene in mice.

Group No.	Dose (mg/kg)	No. of mice	No. of mice with implantation sites	Implantation sites/rat (Mean ± S. E.)
1	Control	10	9	5.1 ± 0.2
2	0.25	8	5	3.3 ± 0.3
3	0.5	7	4	2.1 ± 0.4
4	1	6	0	0
5	2	6	0	0
6	5	6	0	0
7	10	7	0	0

The drug was administered for 5 days from day 1 of pregnancy and implantation sites observed on day 10.

TABLE 2

Effect of single dose of 1,2-diethyl-3-bis (p-methoxyphenyl)-1-propene on anti-implantation activity in mice

Dose (mg/kg)	Day of treatment				
	1	2	3	4	5
	Implantation sites/rat (mean ± S.E.)				
Control	5.76 ± 0.21	—	—	—	—
2	0.83 ± 0	1.57 ± 0.86	1.33 ± 0	4.3 ± 0.2	5.1 ± 0.6
2.5	nil	nil	nil	3.0 ± 0.2	3.3 ± 0.2
5	nil	nil	nil	4.2 ± 0.4	3.5 ± 0.2
10	nil	nil	nil	3.1 ± 0.1	3.6 ± 0.5
20	nil	nil	nil	2.8 ± 0.5	3.1 ± 0.3

$n = 20$ in control group and 6 each in experimental group.

2.5 mg/kg also prevented implantation when applied on either of the day during 1-3% (table 2).

The present results reveal that 1,2-diethyl-1,3-*bis*-(*p*-methoxyphenyl)-1-propene is a potent antifertility agent as it inhibits the pregnancy in mice significantly. As the compound was shown to have significant anti-implantation activity in rats[1], there seems to be no difference in relation to species-specificity. It is thus concluded that the test compound possesses a potent anti-implantation effect in rats and mice which may be due to its estrogenic effect[1,2]. This effect may be due to the expulsion of ova from the tube[5-8] and by disturbing functional equilibrium between estrogen and progesterone[9,10]; thus creating a non-receptive stage in the uterus.

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VARIATIONS IN TOTAL PROTEIN CONTENTS OF THE ADENOHYPOPHYSIS, NEUROHYPOPHYSIS AND EIGHT BRAIN AREAS OF PHYTOHAEMAGGLUTININ—POISIONED RATS.

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SINCE the discovery of recin by Stillmark[1], considerable interest has been shown in the haemagglutinins from plants. Studies with these lectins have shown among several other toxic effects, the inhibition of protein synthesis[2], activation of protein catabolic enzymes[3] and the transaminases[4]; and quantitative increases in the blood values of urea, uric acid and serum protein[5]. Little is however known about the residual toxic effects of these lectins on cholinergic function, particularly as it relates to brain enzyme activity and total brain protein. This communication reports our investigation on the effects of cowpea and limabean haemagglutinins on the protein contents of the adenohypophysis, neurohypophysis and eight brain areas of the weanling rat.

Agglutinins were extracted and purified[6,7] from ground mature cowpea and limabean seeds. The mean lethal doses (MLD) as defined by Mohammed *et al*[8], were determined for albino rats of the Wistar strain (40–42 g) after intraperitoneal injection with different doses of the lectins dissolved in sterile 0.9% NaCl solution. Control rats were given sterile saline solution alone. Several preliminary experiments performed with different concentrations of haemagglutinins gave 2.5 mg/g of cowpea haemagglutinin and 2.0 mg/g of limabean haemagglutinin as the mean lethal doses. These concentrations caused death within 22 and 16 hr of injection in the cowpea haemagglutinin and limabean treated haemagglutinin-treated rats respectively. In the actual experiment, rats thus inoculated, were stunned and killed by decapitation 30 min before the expected onset of death. The heads of the moribund and control rats were removed and the whole brain excised immediately. The meninges were removed and the brain disected into pons, hippocampus, hypothalamus, amygdala, medula oblongata, cerebellum, midbrain and cerebral cortex. Each part was weighed and homogenized individually (1% w/v) in 0.1 M ice-cold phosphate buffer containing 0.1% Triton X-100 (Sigma), pH 7.4. Total protein was immediately determined by a colorimetric method[9], using bovine serum albumin (BSA) as standard protein. Results were analyzed by student's *t* test.