other drugs which have been shown to produce congenital malformations in the young may be flat so that a 10- to 20-fold increase in dose may produce only a moderate increase in toxicity.

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REFERENCES

Kameswaren, L., Pennefather, J. N. and West, G. B. (1962). *J. Physiol.*, **164**, 138–149.
Millen, J. W. (1962). *Lancet*, **2**, 599.
Woolam, D. H. M. (1962). *Brit. med. J.*, **2**, 236.

Anti-inflammatory Activity of Musk

SIR,—Musk is a dried secretion obtained from the prepucial follicles of *Moschus moschiferus* linn. (Fam. Cervidae.) (Chopra, 1958.) Practitioners of the indigenous system of medicine claim to obtain beneficial results with musk in arthritis, and we have now examined its anti-inflammatory properties.

Male albino rats weighing between 150–175 g. were subdivided into 5 groups. The hair of the back was removed with depilatory and the area washed and sterilised with ethanol. Three sealed musk pod samples of authentic musk obtained from the Institute of History of Medicine and Medical Research, India, were examined. Each was made into an emulsion in Tween 80, itself inactive, and injected subcutaneously in 10 rats for each dose of 1·0, 1·5 and 2·0 mg. for each of the 3 samples. Hydrocortisone suspension (Glaxo), 1 mg. in 0·1 ml., was injected subcutaneously to a group of 10 rats and another group of 10 rats kept as control. Granuloma pouches were made 24 hr. later in all the animals, under light ether anaesthesia, by injecting 25 ml. of air deep into loose subcutaneous tissue in the interscapular region using a No. 27 needle followed by the injection through the same needle of 1 ml. of one per cent croton oil solution in olive oil, into the resulting pneumodermal space. During the first 2 to 3 days, the pouches were essentially similar in all the groups. The changes began from the fourth day onwards. In the control group, the wall of the pouch began to thicken and haemorrhagic fluid started filling the cavity. In the musk- and hydrocortisone-treated animals, the wall of the pouch was very thin, transillumination revealing no haemorrhagic fluid and the gradual collapse of the pouch as the air was absorbed.

The experiment was terminated on the fourteenth day after the croton oil injection. The granuloma pouch was dissected, the amount of haemorrhagic fluid present was measured and the pouch wall weighed after careful washing. In the control animals, the pouch was filled by a large amount of haemorrhagic exudate and the pouch wall was extremely hard. In the musk- and hydrocortisone-treated animals only a slight elevation of the skin remained, which indicated that a small amount of the air remained.

The results are given in Table I. The "*t*" test was done to determine the mean values and Snedecor's "F"-test to find out the significance of the difference between the three samples of musk. Since, at the same dose level, the samples gave statistically homogeneous results, they were pooled. The difference

in values between the control, musk- and hydrocortisone-treated animals are statistically highly significant ($P < 0.001$). After 1·0 and 1·5 mg., and 1·0 and 2·0 mg. respectively of musk, the difference in the amount of fluid was also significant ($P < 0.01$ and < 0.001), but betweeen 2·0 mg. musk and 1·0 mg. hydrocortisone the difference was not significant ($P > 0.7$), neither was the difference between the weights of the pouch wall significant, in these latter two instances.

TABLE I

EFFECT OF MUSK AND HYDROCORTISONE ON GRANULOMA POUCH

Drug	Dose (mg.)	No. of rats in each expt.	Fluid in the pouch wall (ml.)	Weight of the pouch wall (g.)
1. Control ..	—	10	10·4 ± 0·293*	4·8 ± 0·161*
2. Musk ..	1·0	30	1·8 ± 0·17	1·4 ± 0·094
(pooled	1·5	30	1·1 ± 0·17	0·8 ± 0·094
samples)	2·0	30	0·1 ± 0·17	0·3 ± 0·094
3. Hydrocortisone acetate ..	1·0	10	0·2 ± 0·293	0·4 ± 0·161

* All figures represent means of S.E. of the mean.

We believe these tests to show musk to be an anti-inflammatory agent like hydrocortisone acetate.

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REFERENCE

Chopra, R. N., Chopra, I. C., Handa, K. L. and Kapur, L. D. (1958). *Chopra's Indigenous Drugs of India*, II Edition, Calcutta: U. N. Dhur.

Effectiveness of 5-Hydroxytryptamine in Ectopic Ventricular Tachycardia Resulting from Acute Myocardial Infarction in the Dog

SIR,—In an earlier publication, we showed that nialamide, a monoamine oxidase inhibitor reverted ectopic ventricular tachycardia induced by two-stage ligation of the anterior descending branch of left coronary artery in dogs to normal sinus rhythm (Kapila and Arora, 1962). Since monoamine oxidase inhibitors increase the concentration of various biological amines within the body tissues (Udenfriend, Weissbach, and Bogdanski, 1957), it was likely that at least one of these amines might be responsible for the observed salutary effect. Noradrenaline, however, when injected intravenously under the same experimental conditions as that of nialamide evoked ectopic ventricular beats (Maling, 1957), instead of reverting ventricular tachycardia to normal sinus rhythm. We therefore thought it worthwhile to study the effect of another monoamine (5-hydroxytryptamine (5-HT)) on the ectopic ventricular activity.