

LETTERS TO THE EDITOR

A Sex Difference in Sensitivity of GFF Mice to an Anaesthetic Steroid

SIR,—The sex difference in sensitivity of mice to certain barbiturates is well known (Hurst, 1958). Here we report a similar finding with the anaesthetic steroid hydroxydione (21-hydroxy-5 β -pregnane-3,20-dione 21-hemisuccinate sodium).

Hydroxydione, in 1 per cent aqueous solution, was injected into the tail veins of fawn mice (GFF strain, 19.5 to 22.5 g.). Groups of 12 males received doses of 50 or 100 mg./kg. weight and groups of 12 females received 25 or 50 mg./kg. The times between the loss and recovery of the righting reflex were recorded ("sleep time"); during sleep, the mice were kept in a cabinet at 35°.

Given doses of 50 or 100 mg./kg., male mice slept for 31.1 min. \pm 2.1 (group mean \pm S.E.) and 52.1 min. \pm 2.1, respectively. The females on 25 mg./kg. slept for 18.2 min. \pm 1.5 and on 50 mg./kg. for 46.3 min. \pm 2.9. The results have been statistically analysed; the sleep times and the logarithms of the doses were used as metameters, and validity criteria were applied (Emmens, 1948). The sensitivity of the female mice to hydroxydione was 1.5 times that of the males (fiducial limits, $P = 0.95, 1.3$ and 1.7).

Twelve male and 12 female mice of the same strain and weight range were injected intravenously with 80 mg./kg. of another anaesthetic steroid, 3 α -hydroxy-5 β -pregnane-11,20-dione 3-phosphate disodium. The males slept for 35.6 min. \pm 3.6 and the females for 38.8 min. \pm 3.0; the difference was not significant ($t = 0.68$; $P > 0.5$). Thus the sex difference applies to one anaesthetic steroid but not to another. It may indicate a difference in the rates or pathways of metabolism of hydroxydione in the two sexes. The sex difference for hydroxydione is not found in all strains of mice. P'An and others (1955), using the Rockland Farm Strain of albino Swiss mice, measured the AD50 of hydroxydione for both sexes. (AD50 is the dose causing half the mice to lose their righting reflex.) They found no significant difference between the two sexes after administration by either the intravenous or the oral route.

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Dilutions of Sulphuric Acid

SIR,—In practice, dilutions of sulphuric acid are made in three ways, volume in volume, weight in weight and weight in volume. Of these three procedures, that of weight in volume is the most tedious, as the mixture has to be cooled before it is made up to volume. It is also impracticable for strong solutions as they have values greater than 100 per cent. Whilst weight in weight dilutions are the most precise, being unaffected by temperature variations, the volume in volume method, for which measured volumes of acid and water are mixed, is

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the easiest and could well replace the other methods, the acid content being checked by a specific gravity determination where necessary.

Using the values in the literature (Hodgman), the products of the three methods of dilution at 20° were compared graphically (Fig. 1). This Figure enables dilutions obtained by one method to be converted to another. It reveals that the B.P. 14.0 per cent v/v acid is nearly identical with the B.P.C. 25 per cent w/v acid, and that the 60 per cent v/v and w/w dilutions are much more dissimilar

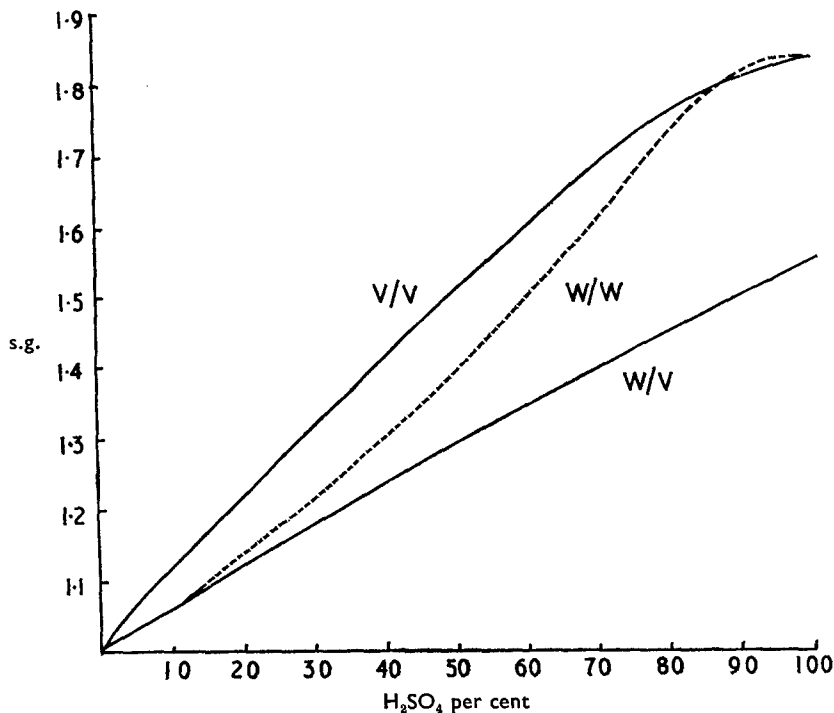


FIG. 1. Comparison of the products of the three methods of diluting H₂SO₄.

than the 80 per cent acids. The B.P. and the B.P.C. have eight dilutions of sulphuric acid, some prepared v/v, some w/w and one w/v. Using the v/v procedure, six dilutions would appear to be sufficient: 80 per cent (roughly equivalent to 80 per cent w/w B.P.C.); 50 per cent (roughly equivalent to 60 per cent w/w); 37.5 per cent (roughly equivalent to 50 per cent w/w B.P.); 20 per cent; 14 per cent (roughly equivalent to 25 per cent w/v B.P.C.); 5 per cent (roughly equivalent to Dilute Sulphuric Acid B.P., which is 10.4 per cent w/w).

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