A SIMPLE METHOD FOR RECORDING ANTIINFLAMMATORY ETFFECTS ON RAT PAW OEDEMA

Sir,

A simple method for recording rat paw volume has been devised using common glassware available in the laboratory. A micropipette of 2 *ml* capacity was connected by means of pressure tubing to a 5 *ml* glass syringe. The proximal end of the micropipette was connected by means of polythene tubing to a glass vessel of 3 *cm* diameter. About 4 *ml* of mercury was filled in the syringe and the mercury level was adjusted to zero mark on the micropipette with the help of syringe. The space between the zero mark on the micropipette and a fixed mark on the glass vessel was filled with water (Fig. 1).

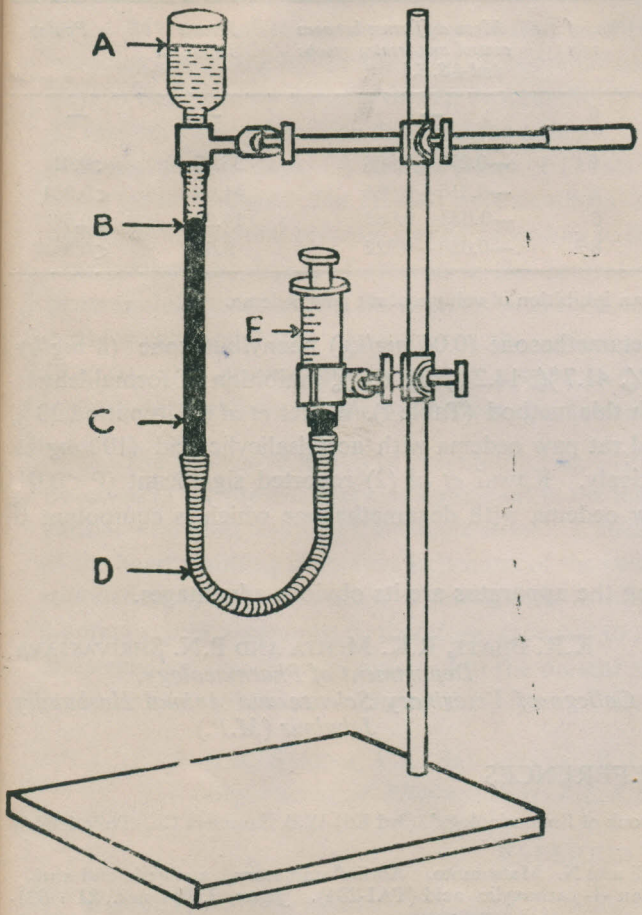

Fig. 1: Apparatus used for measuring volume of rat paw.
A — prefixed mark on the vessel; B — mercury water interface; C — micropipette; D — pressure tubing; E — glass syringe.

Adult albino rats of either sex weighing 120 to 150 *g* were selected and divided in five groups of six animals each. The normal volumes of right hind paws of all the rats were recorded by

dipping them in the glass vessel upto the level of lateral malleolus. The increased level of water in the glass vessel was readjusted to the prefixed mark with the help of the connected syringe. The reading at the point of water and mercury interface in the pipette indicated the volume of the foot. The level of the water in glass vessel was readjusted after recording the volume of each foot. The rats of control group received, orally 5 *ml* of 1 percent aqueous suspension of gum acacia and the rats under treatment received 5 *ml* of aqueous suspension of the individual drugs namely, acetylsalicylic acid betamethasone, phenylbutazone and indomethacin with 1 percent gum acacia.

One hr later, 0.05 *ml* of 2.5 percent (v/v) formaldehyde solution was injected, aseptically, through a 26 gauge needle in the planter surface of the right paw of the rats. The volume in each case was observed thrice and its mean was recorded. The results are summarized in Table I.

TABLE I : Percentage inhibition of rat paw oedema three hr after injection of formaldehyde 2.5% (v/v)

Treatments	*Daily oral dose mg/kg)*	*No. of rats*	*Mean difference between control and treated groups (ml±S.E.)*	*Percent inhibition*	*Pvalue*
[illegible]l (mean volume of [illegible] : 0.7[illegible] *ml*)	—	6	—	—	—
Acetylsalic[illegible]id	80	6	—0.276±0.066	36.28	<0.01
Betamethasone	0.04	6	—0.316±0.064	41.69	<0.001
Phenylbutazone	8	6	—0.033±0.068	14.24	<0.6
Indomethacin	1	6	—0.058±0.322	6.66	<0.9

Minus sign indicates mean inhibition of volume of rat paw oedema.

Acetylsalicylic acid (80 *mg/kg*), betamethasone (0.04 *mg/kg*) phenylbutazone (8 *mg/kg*) and indomethacin (1 *mg/kg*) caused 36.3%, 41.7%, 14.2% and 6.7% inhibition of formaldehyde-induced rat paw oedema respectively, with this method (Table I). Winter *et al* (3) reported 33% and 14% inhibition of carageenin induced rat paw oedema with acetylsalicylic acid (100 *mg/kg* and phenylbutazone (10 *mg/kg*), respectively. Kawai *et al* (2) reported significant ($P < 0.01$) inhibition of carageenin-induced rat paw oedema with dexamethasone which is equipotent to betamethasone (1).

The simplicity and ease of handling the apparatus are its obvious advantages.

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