to the other. The responses of the two preparations may be compared directly so overcoming the need for excessive repetition.

Prepared in the way described in this paper, the guinea pig tracheal chain has proved a consistent and useful tissue in the analysis of the inhibitory actions of sympathomimetics. It lends itself particularly well to the study of blocking and potentiating agents.

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Relation between Dispersibility and Adherence of Powdered Medicinal Substances in Liquid Medium

SIR,—In my recent communication[1] I have reported a method for measuring the dispersibility of powdered medicinal substances by the passage of part of a sample through hydrophilic gauze under the influence of liquid falling in drops. Zinc oxide, talc, bismuth subcarbonate, bismuth subgallate, bismuth subnitrate, bismuth subsalicylate, magnesium subcarbonate, kaolin, precipitated calcium carbonate, precipitated sulphur, mercury amidochloride, yellow mercury oxide, wheat starch, sulphacetamide, sulphadimidine, sulphaguanidine, sulphanilamide, and sulphathiazole, were investigated in this way. Three liquids, i.e. water, 1 per cent solution of Tween 80 in water, and ethanol (95 per cent w/w) were the dispersing media.

I have now determined the "tear off angle" ("Abreisswinkel") of the same substances in the same liquids by a method the principle of which had been suggested by von Buzágh[2]. Thus the adherence of powdered medicinal substances was studied and the relation between dispersibility and adherence was treated by regression analysis[3,4]. The rectification of the data and the due linear regression $\frac{\log u - \log u_k}{d} = 0{\cdot}4343b + 0{\cdot}4343cd$ (d was plotted as abscissa and $\frac{\log u - \log u_k}{d}$ as ordinate) served as fundamentals for finding the values of parameters and the final form of regression equation which in the case of all three liquids proved to be of the following exponential type:

$$u = k.\exp(bd + cd^2) \quad .. \quad .. \quad .. \quad (1)$$

The meaning of symbols is as follows: u = "tear off angle"; u_k = selected reference value of "tear off angle" (in this instance the value for precipitated sulphur), d = dispersibility; k, b, c = parameters relative to the liquid used. The values of parameters for coded units of dispersibility are indicated in Table I (D = actual values of dispersibility); the coding was used in order to facilitate the computation.

TABLE I

PARAMETERS AND SIGNIFICANCE OF THE EXPONENTIAL REGRESSION: ADHERENCE UPON DISPERSIBILITY

Liquid	Parameters			Coding $d =$	Significance of regression (probability of null hypothesis)
	k	b	c		
Water	71·67	$-640{\cdot}7\times10^{-6}$	$0{\cdot}3355\times10^{-6}$	30D—174	$P < 0{\cdot}01$
1 per cent solution of Tween 80 in water	63·58	$226{\cdot}1\times10^{-6}$	$-0{\cdot}4260\times10^{-6}$	30D—543	$P < 0{\cdot}01$
Ethanol (95 per cent w/w)	48·25	$323{\cdot}9\times10^{-6}$	$-0{\cdot}5511\times10^{-6}$	30D—636	$P < 0{\cdot}10$
	(48·25)	$(130{\cdot}1\times10^{-6})$	$(<0{\cdot}8755\times10^{-6})$	(30D—636)	$(P < 0{\cdot}01)$

As far as suspensions of the powdered medicinal substances in alcohol are concerned, the values in parentheses in Table I have been obtained by omission of two unreliable results.

The above mentioned equation (1) can be used for predicting the value of one property from the knowledge of the other (as both variables are on an equal footing from a statistical point of view, the reverse form of the regression, i.e., the one in which the dispersibility is the dependent variable and the adherence the independent one, could also be calculated by means of pertinent procedures) with proper precaution. Furthermore, despite its statistical character and the absence of an immediate proof of causal relationship between the two variables, the equation may be relevant when considering the theory of pharmaceutical suspensions.

Experimental and computational details of this work will be published later.

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