

Urinary excretion of Sulphanilyl-Benzamide and Sulphanilamide in human beings
Dose of each drug = 1 gm. orally

Name of Drug	Volunteer No.	Sample in hours	Total drug excretion in mg.		Percentage excretion of drug in 3 days		
			As free	As conjugated	Total	Free	Conjugated
Sulphanilyl benzamide	1	24	330.2	157.6	70.4	59.3	40.7
		48	78.7	93.1			
		72	8.7	35.1			
	2	24	446.4	233.2	87.6	57.0	43.0
		48	52.9	107.9			
		72	..	46.2			
Sulphanil-amide	3	24	213.2	240.6	71.5	46.7	53.3
		48	94.0	107.0			
		72	25.2	34.8			
	4	24	256.0	475.6	97.4	34.2	65.8
		48	74.2	168.4			
		72			

total 24 hours' urine was collected for three successive days, and the excretion of the drugs both as free and conjugated forms was estimated daily according to the modified technique of Marshall and Litchfield (1938).² The table gives the result of this investigation.

The observations on the urinary excretion as given in the table amply corroborate the rapid systemic absorption of sulphanilyl-benzamide in man (cf. Bose and Ghosh, 1944). The average percentage of the total excretion of the drug as apparent from the table was 79 per cent. in 72 hours, which indicate a fair amount of absorption and a moderately rapid excretion. Moreover, it is being found that the excretion of the drug is more as free (58 per cent.) than as conjugated from (42 per cent.). But in the case of sulphanilamide the reverse is being observed. Considering the excretion of sulphanil-benzamide more in the free state it is considered to be of interest to study the effect of this drug in different urinary infections.

The compound being a benzoyl derivative, it would also be worthwhile to study the excretion of hippuric acid, which might give a clue to the possible nature of its breakdown in the system. Work is already in progress.

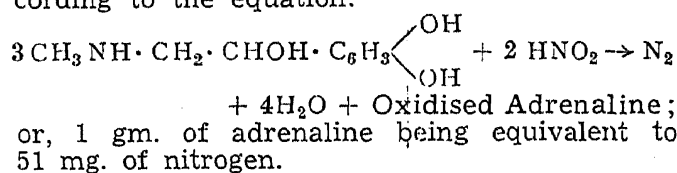
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ESTIMATION OF ADRENALINE BY
VAN SLYKE MANOMETRIC
TECHNIQUE

PURE adrenaline is usually determined by Folin's method as modified by Culhane and Underhill.¹ The significance of the observations of Barker, Eastland and Evers² that ascorbic acid as present in suprarenal gland interferes in the oxidation of the catechol grouping as present in the adrenaline molecule, is now obsolete as most of commercial adrenaline is being produced synthetically and as such free from ascorbic acid. As Folin's method is virtually dependent on the oxidation of catechol part by the phenol reagent, it was thought that the same phenomenon may happen in presence of nitrous acid with the liberation of nitrogen gas (cf. Carter and Dickman³). The latter may then be an easy measure in the estimation of an adrenaline solution according to the equation:



On this basis 0.1 per cent. solution of pure adrenaline hydrochloride was treated with nitrous acid in Van Slyke micro-apparatus by the customary method as followed in usual Van Slyke amino nitrogen estimation. The acid reacted vigorously with the adrenaline solution with evolution of gas which was collected, washed with alkaline permanganate and the volume of residual gas left behind, was

noted. A control without addition of adrenaline was also made in each experiment. The difference in the two readings at N.T.P. gave the amount of nitrogen gas formed during the reaction. From this the weights as recorded in the table below, were calculated out:—

Pure Adrenaline—0.1 per cent. solution.

Time of Reaction—40 minutes.

Period of Absorption—30 minutes.

Expt.	Adrenaline		Nitrogen in mg.		Percentage of error
	c.c.	mg.	found	calculated	
1	1	1	0.0523	0.051	2.54
2	2	2	0.1046	0.102	2.55
3	3	3	0.1576	0.153	3.0

From the table it seems that the above reaction between nitrous acid with adrenaline solution (0.1 per cent.) is practically quantitative. The reaction is being further studied for finding out an easy process of assaying liquor adrenalini hydrochloridi which is also a 0.1 per cent. solution of pure adrenaline.

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1. *Analyst*, 1932, 57, 696. 2. *Biochem. J.*, 1932, 26, 2129. 3. *J. Biol. Chem.*, 1943, 149, 571.

ANTIOXIDANTS FOR SHARK LIVER OIL

The present investigation is primarily concerned with increasing the storage life of Travancore shark liver oils by addition of antioxidants. Antioxidant properties of 2-O-(O-tri-acetyl)-galloyl phloroglucinaldehyde, gallic acid, and hydroquinone have been studied and the results are given in the table below. The peroxide values were determined by Wheeler's titrimetric method (1932) suitably modified for our requirements. The results are expressed as milli-equivalents of peroxides per kg. of oil.

TABLE I
Effect of different antioxidants on rancidity development in shark liver oil

2-O-(O-tri-acetyl) galloyl-phloro- glucinaldehyde (0.067%)			Hydroquinone (0.086%)			Gallic acid (0.069%)		
Time in days	Uninhibited	Inhibited	Time in days	Uninhibited	Inhibited	Time in days	Uninhibited	Inhibited
0	7.0	7.1	0	16.3	15.3	0	8.5	6.4
2	36.8	11.0	2	33.2	15.4	2	29.8	10.8
4	270.4	12.1	4	202.1	15.4	4	46.3	12.6
5	332.1	12.2	6	235.4	15.4	6	69.8	24.1
7	537.8	16.7	10	565.0	21.6	12	419.7	43.0
9	564.6	16.0						

It will be seen that 2-O-(O-tri-acetyl)-galloyl phloroglucinaldehyde is far more effective than gallic acid and fairly comparable in its activity with hydroquinone.

Some of the other chemical antioxidants which have been tried by us include O-p-nitrobenzyl-6-nitrovanillinic acid, 3-isovanillylidine-7-methoxychromanone and p-acetoxycinnamonyl phloroglucinaldehyde, nearly all of which furnished indifferent results. The 'inhibitor' concentrates of a few oil-meal extracts were examined for their antioxidant activity and of these the seeds of *Mucuna pruriens* furnished an extract of mild antioxidant character. Further work on the examination of the antioxidant properties of various vegetable oils, oil-meal extracts, and inorganic and organic compounds is in progress.

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SYMPATHOMIMETICS OF THE NAPHTHALENE GROUP

As early as a quarter of a century ago, Madinaveitia¹ reported that the mere substitution of the naphthalene ring in place of the customary benzene nucleus of the familiar sympathomimetics resulted in an augmentation of activity by over forty times. However, the above report was based on the comparison only of a single pair of analogous compounds belonging to the benzene and naphthalene series which possess the accepted structures for sympathomimeticity. Although a few aminoethane derivatives of naphthalene have been reported in literature as probable sympathomimetics from time to time by other workers,² no effort has yet been made by any of them either to duplicate Madinaveitia's results or to explore the interesting possibilities held out by his highly significant observation by systematic synthesis and study of aminoethane derivatives of poly- and hetero-cyclic ring systems. An essay in this direction recently made by us consisted in the biological examination of a collection of twenty-one compounds,³ severally derived from the naphthalene, acenaphthene, phenanthrene and isoquinoline nuclei and possessing the requisite structures necessary for sympathomimetic activity.

The results obtained indicated that an intensive search for possibly promising sympathomimetics has to be made particularly in the naphthalene series: these results as well as the experimental technique adopted have already been communicated.⁴ Meanwhile, such of the naphthalenic compounds which showed activity in the earlier study have been subjected to re-examination in respect of their pressor activity in the spinal cat, using tyramine hydrochloride (Serial No. 0) as the control. The compounds now studied are the hydrochlorides of β , β -1:1'-dinaphthyl, β -hydroxy ethylamine (No. 1), β , 2-naphthyl, β -hydroxy ethylamine (No. 2), ω -amino, β -acetophenone (No. 3), β -1-naphthyl, β -hydroxy