The Stability of Aqueous Solutions of Picrotoxin to Light

SIR,—It is generally believed that picrotoxin and solutions of picrotoxin are affected by light, but during an examination of some of the physico-chemical properties of substances which possess analeptic activity, it was of interest to observe that aqueous solutions of picrotoxin do not exhibit significant ultra-violet light absorption above 200 mμ. In the monograph on "Picrotoxin Injection" in the 1958 British Pharmacopoeia, and the International Pharmacopoeia 1951 it is stated that "Picrotoxin Injection should be protected from light"; similar statements may be found in *Remington's Practice of Pharmacy* Martin and Cook, 1956 and the *United States Dispensatory* (1955).

After exposing aqueous solutions of picrotoxin to intense tungsten light and to ultra-violet light we have failed to find any evidence to support this belief.

0·1 ml. of different solutions of picrotoxin were injected into the tail vein of unfasted, randomly bred, male albino mice weighing 20–25 g. In addition to measuring the time interval between injection and the first stage of convulsions, another yet less obvious response of the mouse to picrotoxin was employed. With small doses (>7·5 μg.) the mouse will assume a flaccid posture in which it lies full length with its head lowered and stretched out onto the front paws; the hind legs are not properly co-ordinated and are often placed awkwardly in relation to the body. This posture will be described by us more fully elsewhere. There is a linear relationship between the logarithm of the dose and the response time for both "end points".

Solutions of picrotoxin prepared in distilled water (25 mg. and 200 mg./100 ml.) were exposed to intense tungsten light in acid-washed pyrex glassware or to ultra-violet light (254 and 366 mμ) in silica cells, for varying time intervals.

The results of a typical experiment are illustrated in Table I; there was no significant difference in the potency between solutions kept in the dark (controls)

TABLE I

Dose of picrotoxin μg. injected in 0·1 ml.	Flaccid mouse posture (time, sec.)		Convulsion time (sec.)		P
	Controls ± S.E.	Experimental ± S.E.	Controls ± S.E.	Experimental ± S.E.	
	Tungsten light				
	(*a*) 24 hr.				
25	86 ± 2·63	96 ± 5·30	—	—	N.S.
200	—	—	45 ± 1·64	51 ± 7·23	N.S.
	(*b*) 96 hr.				
25	92 ± 3·53	98 ± 6·49	—	—	N.S.
200	—	—	49 ± 4·10	54 ± 3·72	N.S.
	Ultra-violet light (254 and 366 mμ)				
	(*a*) 24 hr.				
25	100 ± 3·76	98 ± 5·33	—	—	N.S.
200	—	—	61 ± 3·56	66 ± 5·14	N.S.
	(*b*) 48 hr.				
25	100 ± 3·76	101 ± 3·39	—	—	N.S.
200	—	—	68 ± 4·42	64 ± 3·64	N.S.

N.S. indicates value for P not less than 0·1. Between 7 and 10 animals per group were used.

and those exposed to light. Since we have failed to detect a decrease in potency of picrotoxin solutions under these conditions, we would like to suggest an alternative explanation for changes in strength on storage. This is that solutions which are stored in glassware which has not been acid-washed may become alkaline. As shown by Bryan and Marshall (1948) and confirmed by our

unpublished results, the potency of picrotoxin solutions diminishes with increase in alkalinity above pH 7.

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BOOK REVIEWS

MEDICAL PHARMACOLOGY. Principles and Concepts. By Andres Goth. Pp. 551 (including Index). Henry Kimpton, London, 1961. 82s. 6d.

This book is written primarily for medical students and practitioners. Its aim is to present the current pharmacological knowledge with particular reference to principles and concepts and not to include all drugs related to each important compound used in medicine. This means that many chapters are short (e.g. antihistaminic drugs, 6 pages) but nevertheless they are concise and do not worry the practitioner with a mass of chemical formulae. The elements of pharmacology are to my mind clearly set out and I enjoyed reading the volume which is well printed and strongly bound. At the end of each chapter, a short set of important references directs the reader to the original studies. The main sections are devoted to General Aspects of Pharmacology, Drug Effects on the Nervous System and Neuroeffectors, Psychopharmacology, Depressants and Stimulants of the Central Nervous System, Anaesthetics, Drugs used in Cardiovascular Disease, Drug Effects on the Gastrointestinal Tract, Drugs Influencing Metabolic and Endocrine Functions, Chemotherapy, Poisons and Antidotes, and Prescription Writing. There are few mistakes (the formula for Regitine on page 113 is incorrect), but some chapter titles are open to objection, e.g. Adrenergic drugs, Cholinergic drugs and Nonnarcotic analgesic drugs, besides a section on Antidiarrheal agents. The book may be thoroughly recommended to those who are not particularly keen in finding out the mechanism of action of drugs, though its high price is a great drawback. G. B. WEST.

PHARMACOGNOSY. 4th Edition. By Edward P. Claus. Pp. 565 (including 227 illustrations, 1 plate in colour, and Index). Henry Kimpton, London, 1961. 93s. 6d.

The author states that the term Pharmacognosy literally means (p. 9) a "cognizance of pharmaceuticals" and (p. 10) defines it as "an applied science which deals with the biological, biochemical and economic features of natural