

LETTERS TO THE EDITOR

Stability of Solutions of Adrenaline Tartrate

SIR,—The stability of solutions of adrenaline in hydrochloric acid, in tartaric acid, and in ascorbic acid was investigated in previous studies^{1,2,3,4,5}. Based chiefly on the results of short-term heating experiments, the optimal conditions of preparation and storage were suggested. The opportunity for investigating the stability of solutions of adrenaline in varying amounts of tartaric acid and 0.1 per cent. sodium metabisulphite after long-term storage has now arisen, and results clearly confirm the conditions previously stated and now incorporated in the British Pharmacopœia, 1948. Nearly all the samples were prepared and sterilised in 1944, and since that time have been retained in ampoules in the dark at room temperature. They were all colourless. For activity, they were compared against a fresh standard adrenaline solution (1 in 1000 of base) by the method of Burn, Hutcheon and Parker⁶ which utilises the simultaneous recording of contractions of the normal nictitating membrane and the rise of blood pressure of a spinal cat. In many cases relaxation of the non-pregnant uterus of the cat was also measured, this being a very sensitive test for adrenaline activity. The results shown in the accompanying Table indicate that the optimal pH value is about 3.6, similar to that found by taking a solution of adrenaline acid tartrate containing sodium metabisulphite (0.1 per cent.). Solutions of the latter mixture stored for 6 years in vaccine bottles after sterilisation (115°C. for 30 minutes) showed little loss of activity. From the point of view of both long-term and short-term experiments, the Pharmacopœial conditions of preparation and storage for injection of adrenaline tartrate are adequate. Loss of activity will occur if the containers are not full or nearly full when sterilized.

THE EFFECT OF STORAGE FOR 6 YEARS ON THE PHYSIOLOGICAL ACTIVITY OF TREATED SOLUTIONS OF ADRENALINE IN TARTARIC ACID CONTAINED IN FULL 2 ML. AMPOULES. (EXPRESSED AS PERCENTAGE ACTIVITY COMPARED WITH FRESH STANDARD ADRENALINE SOLUTION.)

Original pH of solution	Treatment before storage			
	Untreated	115°C.		
		30 minutes	3 hr.	6 hr.
3.0	91	87	81	81
3.6	95	91	91	87
4.2	91	87	81	74

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REFERENCES

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2. West, *ibid.*, 1945, **18**, 267.
3. West, *ibid.*, 1946, **19**, 256.
4. West, *ibid.*, 1947, **20**, 541.
5. West and Whittet, *ibid.*, 1948, **21**, 225.
6. Burn, Hutcheon and Parker, *Brit. J. Pharmacol.*, 1950, **5**, 142.