LETTERS TO THE EDITOR

The Ultra-Violet Absorption Spectrum of Papaverine Hydrochloride

SIR,—The ultra-violet absorption spectrum of papaverine and its hydrochloride have been recorded by Steiner[1], Kitasato[2] and by Pruckner and Witkop[3]. Both absorption curves, besides having a broad band of low intensity between λ 330 mμ and λ 275 mμ, exhibit a band of high intensity with a maximum in the region of λ 240 mμ. The latter seems of particular value for quantitative work and, with this in view, we have attempted to determine the position of the maximum and the extinction coefficient for this band when an aqueous solution of pure papaverine hydrochloride is examined.

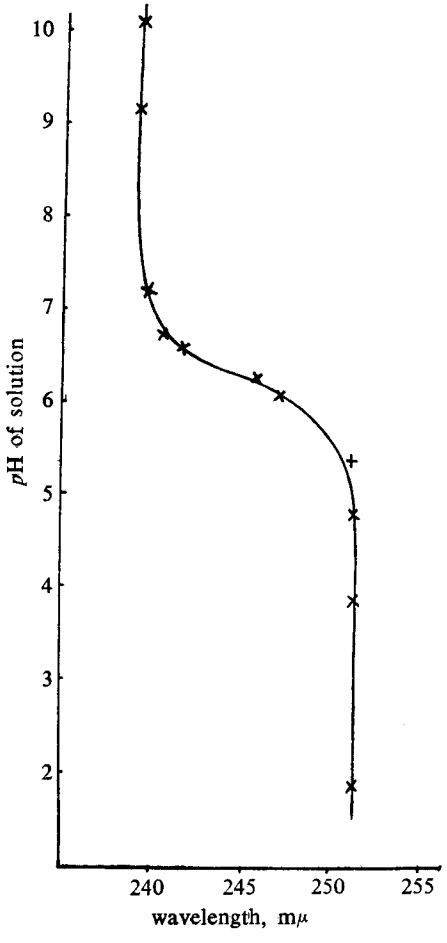

FIG. 1.—Variation of wavelength of maximum absorption with *p*H

During preliminary experiments some difficulty was experienced in getting consistent results for the position of the head of the band. It was eventually discovered that the position of the maximum was very sensitive to changes in the *p*H of the solution and this was fully confirmed when a series of solutions of papaverine hydrochloride, prepared in appropriate buffer solutions, was examined. The results of these experiments are shown in Figure 1, which shows the variation of the wavelength of maximum absorption with *p*H. Papaverine hydrochloride, in fact, behaves as a sensitive indicator and its ultra-violet absorption spectrum should be measured under standardised conditions of *p*H.

Besides the position of the absorption band the *p*H influences the value of the extinction coefficient, which possesses a minimum value at approximately *p*H 6·3. Relevant data are summarised in Table I.

These measurements were made with a Uvispek spectrophotometer using specimens of natural and synthetic papaverine hydrochloride, which were

kindly supplied by Mr. F. J. Bolton, of J. F. Macfarlan and Co. The absorption data of the natural and synthetic materials were identical.

TABLE I

EFFECT OF *p*H ON THE ULTRA-VIOLET ABSORPTION OF PAPAVERINE HYDROCHLORIDE

*p*H of solution	Wavelength of maximum absorption	$E^{1\text{ per cent.}}_{1\text{ cm.}}$
9	238 mμ	1700
6·3	245 mμ	1285
3·95	251 mμ	1595

Wellcome Chemical Works,
Dartford, Kent.
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REFERENCES

1. Steiner, *C.R. Acad. Sci., Paris*, 1922, **175**, 1146.
2. Kitasato, *Acta Phytochim.*, 1927, **3**, 246.
3. Pruckner and Witkop, *Liebigs Ann.*, 1943, **554**, 134.

ABSTRACTS (*Continued from Page* 126)

containing 0·05 g. and the effective dose varied from 4 to 10 tablets daily. Rigidity was found to respond better than tremor when the two occurred in combination, but tremor alone responded best. One of the advantages of lysivane therapy is that the drug can be combined with other forms of treatment, such as stramonium. In two cases the effect achieved by the combination of the two drugs was far superior to that achieved by either separately. The chief toxic effects from the drug are drowsiness and lassitude, with or without vertigo, appearing half an hour after dosage and lasting 1 or 2 hours. Dryness of the mouth, transient diplopia, and vasomotor reactions occur rarely and disappear spontaneously. The drug should never be withdrawn suddenly. S. L. W.

Phenylindanedione, Clinical Trials with. A. Blaustein. (*Canad. med. Ass. J.*, 1950, **62**, 470.) The drug was investigated in 20 patients, 16 of whom had thrombotic episodes in the form of coronary heart disease and thrombophlebitis of the lower limbs. With an initial dose of 100 mg. in the morning and 100 mg. at bedtime the prothrombin concentration was altered from its initial value to 25 or 30 per cent. in from 23 to 28 hours. To lower the prothrombin level to 15 per cent. of concentration a dosage schedule of 50 mg. in the morning, 50 mg. at noon and 100 mg. at bedtime is employed. Maintenance requirements depend on the daily prothrombin time; in this series 51·4 mg./day represented the maintenance dose required to keep the prothrombin concentration between 25 and 30 per cent. On cessation of the drug the prothrombin time returns to normal in 48 to 72 hours. The drug can be safely given. Three of the patients were clinically overdosed, as evidenced by prothrombin times of infinity. Only one of the patients bled; he had hæmaturia, which ceased when the drug was discontinued. There was no evidence of any interference with liver function, and the sedimentation rate and white blood cell counts were not appreciably altered by the treatment. The actions of the drug would appear to place it somewhere between heparin and dicoumarol, though its properties are more closely allied to the latter. S. L. W.