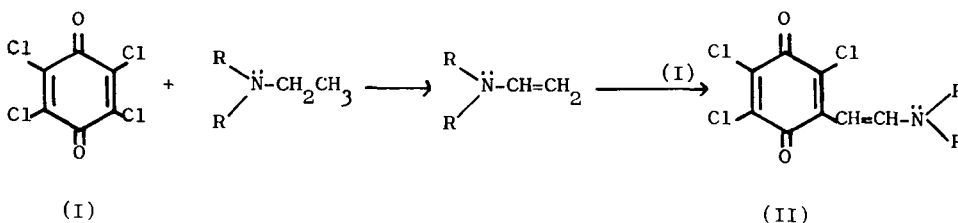


SENSITIVE AND SPECIFIC PHOTOMETRIC DETERMINATION OF N-ETHYL DRUGS

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The interaction of a number of N-ethyl drugs with chloranil (I) in benzene yielding blue dialkylaminovinylquinones* (II) has been utilised in a sensitive and specific photometric assay of these drugs. The liberated bases in benzene were treated with 1% chloranil in benzene and heated at $80^{\circ} \pm 5$ for 1h.

Absorbance readings at 680 nm were linear for all compounds examined (N-ethylpiperidine, pentoxyverine, oxeladine, dicycloverine, myrtecaine, tolycaine, etafedrine, fencamfamine, etamiphylline and camylofine) in the general concentration range of 4-1300 $\mu\text{g ml}^{-1}$ corresponding to apparent molar absorptivities in the range of 4900 - 1200.



The oxidation requires a flexible, basic >N-C-C- group, hence, the closely related N-methyl drugs were expected not to interfere. This finding was verified experimentally. Similarly, the non-basic quaternized N-ethyl salts (circlonium bromide) and the weakly basic N-ethyl amides (propanidid) lacking the basicity required for oxidation did not interfere.

Since the molar absorptivities of the natural ultraviolet bands of most drugs examined are very small (70-185), the method afforded an increase in sensitivity of assay up to 50 fold rendering it particularly worthwhile to analyse these drugs. In addition, the more frequently co-prescribed N-methyl drugs (e.g. cough mixtures containing N-ethyl antitussive with N-methyl antihistamine or N-methyl ephedrine analogue) which would normally be co-analysed on applying the popular acid dye photometric method for tertiary amines, afforded no measurable blue colour on similar treatment, hence did not interfere.

The method has been successfully applied to analyse the title drugs with good accuracy (99.8% recovery) and precision (s.d. $\pm 1.546\%$) in bulk form as well as in some cough syrups.

* D. Buckley, H.B. Herbert and P. Slade (1957). J.Chem.Soc., 4891