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NOTE

Spectral Dye Absorbance Interactions of *o*-Chloroarylimino Crotono *o*-Chloro Aryl Imino Cadmium Anilide with its Components

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Dye absorbance interactions of *o*-chloroarylimino-crotono-*o*-arylimino anilide and its components, *viz.* *o*-chloroaniline, methyl acetoacetate, *o*-chloroarylimino-crotonate have been examined with respect to cadmium chloride.

Arylamine reacts at room temperature with methyl acetoacetate forming aryliminocrotonate which on refluxing with metal halide forms β-arylimino crotono arylimino metal anilide[1]. Spectral dye absorbance molecular interactions between any two salts or binary mixtures of any two liquids have been graphically indicated by peaks in absorbance concentration curves[2–4].

In the present work, it is interesting to observe absorbance intensity peaks when absorbance of organic components (0.003 M) against $CdCl_2$ (0.003 M) concentration is plotted, as shown by peaks in the ratio of 1 : 1, 1 : 2 of $CdCl_2$ and components.

Components	No. of peaks	Ratio	λ_{max} Absorbance intensity
1. Methyl acetoacetate	02	1 : 1, 1 : 2	2 > 1 (0.590) (0.558)
2. *o*-Chloro β-arylimino crotonate	02	1 : 1, 1 : 2	1 > 2 (0.535) (0.532)
3. *o*-Chloro arylimino crotono-*o*-chloro anilide	02	1 : 1, 1 : 2	1 = 2 (0.542) (0.542)
4. *o*-Chloro aniline			No Peak

$CdCl_2$ (0.003 M) and components (0.003 M) concentration solutions and dye crystal violet (C.V.) 1.0×10^{-6} M concentration solutions were prepared in methanol. Different sets of solutions were prepared by increasing concentration of methyl acetoacetate, or *o*-chloro β-arylimino crotonate or *o*-chloro arylimino crotono-*o*-chloro anilide, or *o*-chloro aniline; $CdCl_2$ (12 mL) and dye crystal violet

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(C.V.), concentration being kept constant, and mixture was made up to 50 mL with methanol.

A Shimadzu double beam spectrophotometer UV-160 A was used for spectral measurement. Absorbance of pure dye solution at λ_{max} in each set of solutions was measured and plotted against increasing methyl acetoacetate, *o*-chloro-β-arylimino crotonate or *o*-chloro-arylimino crotono-*o*-chloro anilide or *o*-chloro aniline. The graphs indicated peaks corresponding to the ratio of two liquids in stoichiometric proportion shown in Table.

Methyl acetoacetate interaction with cadmium chloride is higher at higher concentration and lower at lower concentration of the ester because of stronger C=O group than —$COOC_2H_5$ group, while reverse in the case with crotonate, because C=O is replaced by weaker C=N group. In case of anilide both groups C=N and —CONH are equally effective, chloroaniline has very little interaction due to weak —NH group and no peak is observed.

In the drug regimens for different diseases two or more drugs are prescribed together with vitamin capsules containing minerals such as iron or zinc, such combinations may be additive, or synergistic or even antagonistic. Hence it would be interesting to examine molecular interactions between drugs, such as isoniazid, pyrizinamide, PAS, ethambutol, ritampcin etc. meant for TB. This approach may throw light on compatibility of such interactions.

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ERRATUM

In paper "Effect of garlic extract on lactic culture", Vol. 10, No. 1, pp. 189–191 (1998), in name of authors, please read B.K. Singh instead of Birendra Kumar.