A STUDY OF THE HYDROGEN BONDS BETWEEN THE NITRO-GROUP AND THE HYDROXYL OR AMINO-GROUPS IN SUBSTITUTED NITROPARAFFINS

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Abstract—The ultra-violet absorption epectra of many nitro paraffin derivatives containing hydroxyl and or amino groups, do not show a maximum (260–270 mμ) typical of the nitro group. This is attributed to the formation of six-membered chelate rings by internal hydrogen bonds between the nitro and hydroxyl or amino groups. The presence of such hydrogen bonds also produces a bathochromic effect, the maxima being shifted towards longer wavelengths (270–285 mμ); but *two* hydroxyl groups or one secondary amino group are necessary to transform the normal maximum of the nitro group into a bend. This is considered as new evidence for the electrostatic nature of the hydrogen bond. Hydrogen bonds between nitro and hydroxyl or amino groups also produce a bathchromic effect; the corresponding maxima being shifted towards longer waves (270–285 mμ).

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THE STRUCTURE OF FAGARINE II

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Abstract—The structure of Fagarine II, an alkaloid from *Fagara coco* (Gill.) Engl., has been elucidated through its transformation into tetra-hydro-psuedo berberine.

THE STRUCTURE OF ψ-CONHYDRINE

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Abstract—The three-dimensional structure, except for the absolute configuration, of ψ-conhydrine has been determined in an X-ray diffraction study of ψ-conhydrine hydrobromide. In agreement with recent chemical evidence, the OH and propyl groups are found to be *trans* to each other, and in the equatorial position relative to the saturated six-membered ring. The unit cell is orthorhombic in the space group D_2^4-$P2_12_12_1$, contains four $C_8H_{18}NOBr$, and has dimensions $a = 15{\cdot}15$, $b = 9.28_6$ $c = 7{\cdot}72$ A. Refinement, including anisotropic thermal motion, has yielded values of $R = \Sigma||F_o| - |F_c||/\Sigma|F_o| = 0{\cdot}109$ and $r = \Sigma w(|F_o|^2 - |F_c|^2)^2/\Sigma w|F_o|^4 = 0{\cdot}056$ for the 920 observed reflections.