

RING TRANSFORMATION OF 2-FURYL CARBAMATES

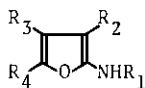
TO 5-HYDROXY-3-PYRROLIN-2-ONES

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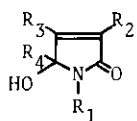
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2-Furylcarbamates (1)-(6) were found to react with oxygen by standing or irradiation in benzene at room temperature and in the absence of catalysts or bases to give corresponding 5-hydroxy-3-pyrrolin-2-ones (7)-(12). In the case of 5-phenyl- or 5-methyl-2-furylcarbamates (2) and (6), *trans*- γ -ketoamides (13) were obtained as other products. Furthermore, the ring-chain tautomerism of *cis*- γ -ketoamides (14) with phenyl substituted 5-hydroxypyrrolinones (8) were examined by NMR spectra. As the results, the influence of substitutions in the benzene ring and of the solvent polarity of equilibrium were obviously.

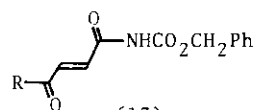
In the syntheses and NMR experiments of these pyrrolinone derivatives, the structure of jatropham (11, $R_1=H$), one of pyrrolinone derivatives proposed by Cole et al., is revised to the formula (10, $R_1=H$).



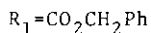
(1)-(6)



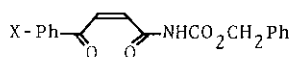
(7)-(12)



(13)



- (1), (7) $R_2=R_3=\text{Ph}$, $R_4=\text{H}$
 (2), (8) $R_2=R_3=\text{H}$, $R_4=\text{Ph-X}$
 (3), (9) $R_2=R_3=R_4=\text{H}$
 (4), (10) $R_2=\text{CH}_3$, $R_3=R_4=\text{H}$
 (5), (11) $R_3=\text{CH}_3$, $R_2=R_4=\text{H}$
 (6), (12) $R_4=\text{CH}_3$, $R_2=R_3=\text{H}$



(14)