E2-02 : CYCLOADDITION REACTIONS OF FURFURAL PHENYL HYDRAZONE WITH MALEIMIDES

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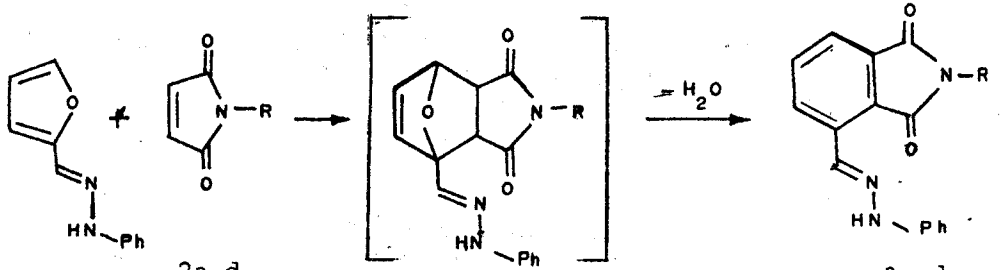
Furfural N,N-dimethyl hydrazone has been shown to react with dimethyl acetylene dicarboxylate to yield three products, 2-cyano furan, a N,N-dimethyl amino diester and N,N-dimethyl hydrazone of 2,3-dicarbomethoxy 4-carboxaldehyde phenol. Unlike the N,N-dimethyl hydrazones, phenyl hydrazones can exist as its 1, 3 dipolar tautameric form and dipolar cycloadditions are also known with aromatic phenyl hydrazones.

In our investigations of cycloaddition reactions of heteroaromatic phenylhydrazones we have studied the reactions of furfural phenyl hydrazone with four maleimide dienophiles. Furfural phenylhydrazone 1 reacts with maleimides 2a-d at the furan ring when refluxed in benzene. No hetero Diels-Alder or 1,3-dipolar cycloaddition products were observed in these reactions and the only products isolated were phthalimide derivatives 3a-d. The primary adduct was not observed in these reactions and it is believed that the primary Diel-Alder adduct resulting from the cycloaddition with the furan ring readily loses a molecule of water during

cycloaromatization. All products were characterised by spectroscopic methods (IR, ^{1}H and ^{13}C NMR, and mass spectrometry).



2a-d

3a-d