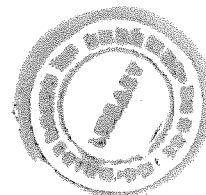


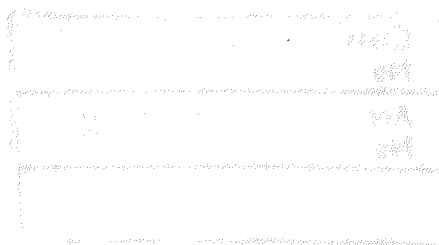
STUDIES ON THE CYCLOADDITION
REACTIONS OF SOME ARYL HYDRAZONES AND
ARYL N-SULFINYLAMINES

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ABSTRACT

Furfural phenylhydrazone react with N-aryl (alkyl) maleimides in the furan ring when an equimolar mixture is refluxed in benzene. The primary Diels-Alder adduct is not isolated and it readily fragments with the elimination of water and concurrent cycloaromatization. The reaction with excess of maleimide gives a mixture of two adducts. The major product is the same product found in the equimolar reaction and the minor product is the product resulting from a double cycloaddition. The second equivalent of maleimide react at the azomethine imine tautomeric form of the hydrazone function.

Aryl-N-sulfinylamines react with 1,4-naphthoquinone to give 2-(N-arylsulfinamoyl)-1,4-naphthoquinones. The reaction is believed to occur via an initial 2+2 cycloaddition of the N=S bond of the sulfinylamine with 1,4-naphthoquinone, followed by fragmentation of the 1,2-thiazetidone-1-oxide intermediate with a 1,3-H shift. Aryl N-sulfinylamines adds regiospecifically to 5-hydroxy 1,4-naphthoquinone to give 3-(N-arylsulfinamoyl)-5-hydroxy-1,4-naphthoquinones. 1,4-Benzoquinone react with three molecules of aryl-N-sulfinylamine to give adducts. Two molecules of aryl-N-sulfinylamine react with 1,4-benzoquinone as in the case of 1,4-naphthoquinone and the third molecule reacting on one of the C=O groups of the benzoquinone with the elimination of SO₂. Hydrolysis of 2-(N-arylsulfinamoyl)-1,4-naphthoquinones with aqueous HCl gives 2-hydroxy-1,4-naphthoquinone.