REACTIONS OF
2, 3 - DISUBSTITUTED - 4 (3H) - QUINAZOLINONES

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ABSTRACT

of the thesis entitled

Reactions of 2,3-Disubstituted-4(3H)-Quinazolinones

by

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The present work deals with our studies on the chemical reactivity of 2-methyl-3-aryl-4(3H)-quinazolinones in general and 2-substituted methyl-3-phenyl-4(3H)-quinazolinones in particular.

These compounds have been reported to resist hydrolysis, however we have observed hydrolytic ring cleavage on treating with strong bases. Electron withdrawing substituents present at 2-methyl group facilitate not only the hydrolytic cleavage but also the oxidative ring cleavage of the pyrimidine ring by DMSO both in acidic as well as basic medium. In case of 2-bromomethyl derivative the reaction results in the formation of benzodiazepinedione and a self condensation product on treatment with DMSO anion.

Mannich and Michael reactions have been observed to be solvent dependent. Thus in protic solvents the Mannich reaction gives 2-alkoxy ethyl derivative and Michael reaction gives open amides. In aprotic medium normal products are obtained.

Treatment of 3-p-tolyl derivative with NBS in presence of HBr or benzoyl-peroxide as a catalyst resulted in selective bromination.

2-Bromomethyl-3-phenyl derivative undergoes oxidation with $AgNO_3$ to give 2-formyl derivative. It reacts with primary, secondary and tertiary amines to give corresponding 2-substituted methyl derivatives. NaOH in alcohol results in the formation of alkoxy derivatives and their open amides. Its reaction with anion derived from acetoacetic ester, acetylacetone, KCN, KSCN gave normal products whereas with morpholinoenamine of cyclohexanone, N-alkylation product was obtained.

Quarternary pyridinium bromide of 2-bromomethyl derivative gave quinazolinonedione with NaOH.

The epoxy compound obtained from Darzens reaction of the bromo derivative with cyclohexanone gave benzamido derivative when reacted with benzonitrile in acidic medium.

Mass spectral fragmentation of these compounds follow a systematic behaviour which could be correlated with the structure of the compounds.

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