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SYNTHESIS AND CHARACTERIZATION OF SUBSTITUTED PHENOTHIAZINES

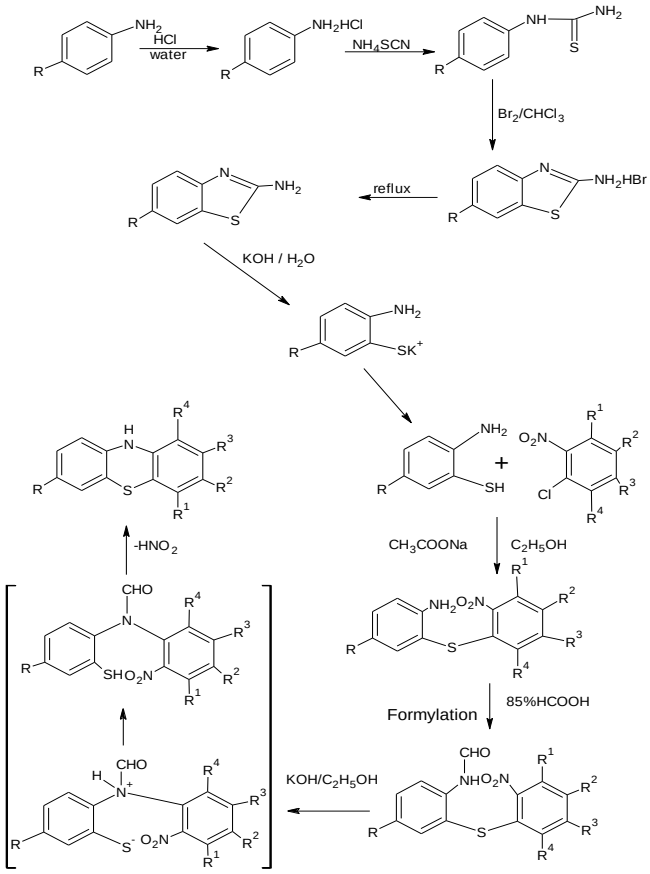
Mohammad Younis Dar[1]

ABSTRACT

Phenothiazines possess a wide spectrum of pharmacological and biological activities. Phenothiazines are very potent anticancer agents. There is a fold along sulfur-nitrogen axis, which imparts a wide range of biological activity to it. Phenothiazines have been synthesized Via Smiles arrangement by the reaction of substituted 2-aminobenzenthiols with o-halonitrobenzenes.

2-Aminobenzenethiols had been synthesized by alkaline hydrolysis of 2-aminobenzothiazol which in turn synthesized by the reaction of aniline hydrochloride with ammoniumthiocyanate.

O-Halonitrobenzenes having nitro group at both ortho positions yield directly phenothiazines as Smiles arrangement occurs in situ. Halonitrobenzenes having a nitro group at ortho to halogen give substituted 2-amino-2'-nitrodiphenylsulphides, which on formylation with 85% formic acid yield substituted 2-formamido-2'-nitrodiphenylsulphides, which undergo Smiles rearrangement to provide phenothiazines. Characterization of compounds has been done by FTIR and NMR technique.



Where R = H, Br

R^1=R^3 =R^4= H,

R^2 = CF_3