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SYNTHESIS, CHARACTERIZATION, CHIRAL SEPARATION AND CARBON-CARBON DOUBLE BONDS REDUCTION OF CHALCONE USING PHENYLSULFONYL HYDRAZIDE

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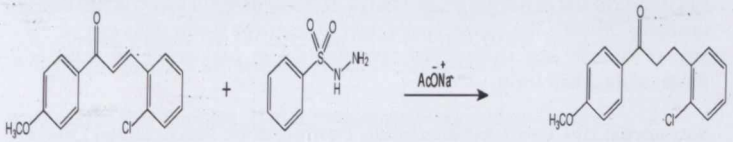
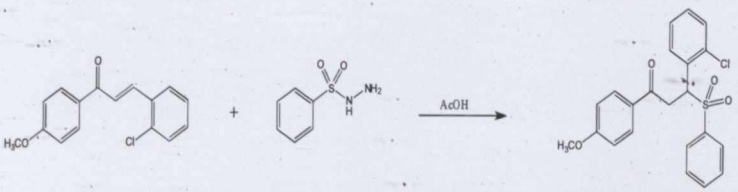
ABSTRACT

Recent study on chalcone derivatives has attracted much attention due to its great interest in pharmacological activities such as potential cytotoxic agents, antimicrobial agents, antiviral, anti flammatory, anesthetic, and etc. There are various methods used to synthesize chalcone. The most common used is Claisen-Schmidt condensation of aldehyde and ketone by base catalysed or acid catalysed. The reactions of substituted chalcones with phenylsulfonyl hydrazide in ethanol resulted in the reduction of the carbon-carbon double bond of the chalcones.

Pathway 1



Pathway 2



While in the presence of sodium acetate, the reactions gave the corresponding ketones as the sole product, in acidic conditions, along with the ketones, sulfones having a chiral center were generated. The R- & S- isomers were separated by using chiral coloumn. The products were all characterized by IR and NMR spectroscopy and x-ray crystallographic analysis. Cytotoxicity studies of both isomers were investigated.

Keywords: Chalcones, Phenylsulfonyl Hydrazide, Carbon-Carbon Reduction.