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Novel Biphenylic 3, 4-dihydropyrimidine Derivatives as Anti-Microbial Agents: Synthesis, Characterization and *in vitro* Antimicrobial Activity

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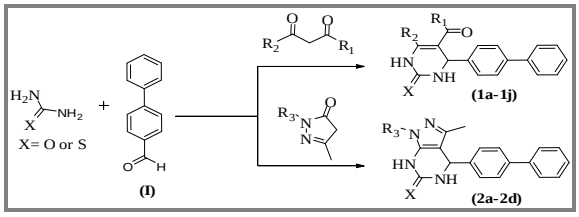
ABSTRACT

In the present scope of work we have prepared a series of dihydropyrimidine derivatives via Biginelli reaction by using seven different β-Keto esters i.e. ethylacetoacetate, acetoacetanilide, 2,6-dimethylacetoacetanilide, methyl acetoacetate, ethylcyanoacetate, 3-methyl-5-pyrazolone, 1-phenyl, 3-methyl-5-pyrazolone etc and urea or thiourea along with synthesized biphenyl 4-carbaldehyde in DMSO solvent. The structures of newly synthesized compounds were established by IR, ^{1}H NMR, and Mass spectrometry. The synthesized compounds were evaluated for their in-vitro anti bacterial activity against S. aureus and B. megaterium (Gram+ve bacteria) and P. fluorescens, S. marcensus (Gram-ve bacteria) with reference standard drug ciprofloxacin and anti fungal activity against A. niger fungus with reference standard drug carbendazim.

Graphical Abstract



General scheme for the synthesis of final compounds.

Keywords: Biphenyl dihydropyrimidine, Biginelli Reaction, Suzuki reaction, Antimicrobial activity, Antifungal activity, Multicomponent reaction.