



## Synthesis of 10-(2-Phenyl-imidazo [2, 1-b] [1,3,4]thiadiazol-6-yl)-10H-phenothiazine derivatives and their *In-vitro* Biological Studies

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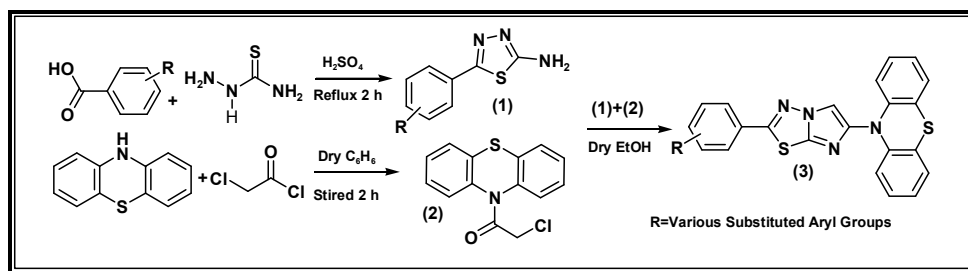
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### ABSTRACT

New series of 10-(2-Styryl-5,6-dihydro-imidazo[2,1-b][1,3,4]thiadiazole-6-yl)-10H-phenothiazine were synthesized by cyclization of various carboxylic acid with thiosemicarbazide in presence of sulphuric acid was to get compound **1**. Another way phenothiazine treated with chloroacetyl chloride yielded compound **2**. Further, cyclization of compounds **1** and **2** followed by refluxation about 18 h to get the final products **3** and **3a-3i** of the series. The structures of compounds were confirmed by IR, <sup>1</sup>H-NMR, <sup>13</sup>C NMR and mass spectroscopy and by chemical analysis. All the above compounds were screened for their antimicrobial activity against some selected bacteria and fungi such as *E. coli*, *B. subtilis*, and *S. typhi* bacteria and *A.niger*, *A. flavus* and *F. oxisporium* fungi.

### Graphical Abstract



**Keywords:** Thiadiazole, Phenothiazine, Imidazole, Antimicrobial activities.