



## Synthesis, Evaluation of Antimicrobial, Antioxidant, DNA Cleavage and Molecular Docking Studies of Pyridazine Derivatives

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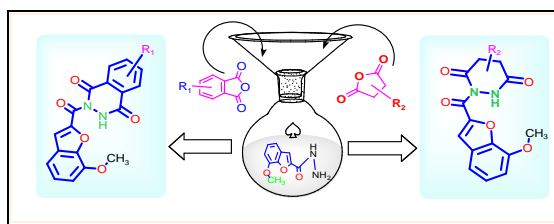
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Accepted on 03<sup>rd</sup> March, 2023

### ABSTRACT

Literature survey reveals that the heterocyclic compounds involving Phthalazines and pyridazines possesses excellent biological properties. In the present work we report the synthesis of benzofuran moiety linked with Phthalazines and pyridazines. In continuation of our synthetic investigation, the present synthesis was achieved by the starting compound 7-methoxy-benzofuran-2-carbohydrazide (**1**). Carbohydrazide was condensed with phthalic anhydride and substituted phthalic anhydrides to obtain 2-(7-Methoxy-benzofuran-2-carbonyl)-substituted-2,3-dihydro-phthalazine-1,4-diones (**2a-h**). Further on condensing with succinic anhydride and substituted succinic anhydrides we obtain 1-(7-Methoxy-benzofuran-2-carbonyl)-substituted-tetrahydro-pyridazine-3,6-diones (**3a-c**). The structures of the newly obtained derivatives were confirmed by spectral and analytical data. Few compounds were screened for antibacterial, anti-fungal, anti-oxidant activity, DNA cleavage/protection properties and molecular docking studies. Some compounds exhibited encouraging of results.

### Graphical Abstract:



Scheme of the syntheses of Pyridazine derivatives

**Keywords:** Benzofuran, Carbohydrazide, Phthalazines, Pyridazines, Antioxidant, Antimicrobial activity, Molecular docking and DNA cleavage.