



## Synthesis, Characterization and Antimicrobial Activity of Benzofuran Derivatives

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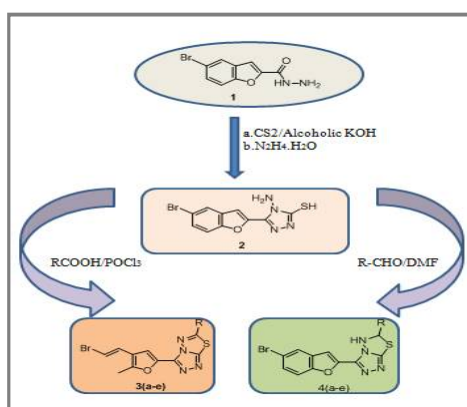
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### ABSTRACT

The literature survey reveals that the heterocycles triazoles and triazolothiadiazole derivatives have exhibited diverse biological properties. In continuation of our search for biologically potent benzofuran heterocycles linked to other nitrogen heterocycles we now reporting the synthesis of 5-bromobenzofuran-2-carboxylic acid hydrazide (**1**) with carbon disulphide and KOH in ethanol to get the potassium salt which was an intermediate, which on further treatment with hydrazine hydrate gave 4-amino-5-(5-bromobenzofuran-2-yl)-4H-[1,2,4]triazole-3-thiol (**2**). The compound **2** on reaction with various aromatic carboxylic acids in POCl<sub>3</sub> furnished 6-(aryl)-3-(5-bromobenzofuran-2-yl)-[1,2,4]triazolo[3,4-b] [1,3,4] thiadiazoles **3(a-e)**. The compound **2** when treated with various benzaldehydes in DMF yielded the cyclised products 6-(aryl)-3-(5-bromobenzofurandihydro-[1,2,4]triazole[3,4-b][1,3,4]thiadiazoles **4(a-e)**.

### Graphical Abstract:



5-bromobenzofuran-2-carboxylic acid hydrazide (**1**) 4-amino-5-(5-bromobenzofuran-2-yl)-4H-[1,2,4]triazole-3-thiol (**2**).  
6-(aryl)-3-(5-bromobenzofuran-2-yl)-[1,2,4]triazolo[3,4-b] [1,3,4] thiadiazoles **3(a-e)**. 6-(aryl)-3-(5-bromobenzofurandihydro-[1,2,4]triazole[3,4-b][1,3,4]thiadiazoles **4(a-e)**.

**Keywords:** Benzofuran, hydrazide, triazoles, triazolothiadiazole and antimicrobial activity.