

## **In vitro Biological Activity of Some Synthesized Monoazo Heterocycles Based On Thiophene and Thiazolyl-Thiophene Analogue**

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**Abstract :** Potential synthesis of a series of 3-amino-4-arylazothiophene derivatives from reaction of 2-cyano-2-phenylthiocarbonyl acetamide and the appropriate  $\alpha$ -halogenated reagents, followed by coupling with different aryl diazonium salts (Japp-Klingemann reaction), and another series of 5-aryazo-thiazol-2-ylcarbonyl-thiophene derivatives from base-catalyzed intramolecular condensation of 5-aryazo-2-(N-chloroacetyl)amino-thiazole with selected  $\beta$ -keto compounds (Thorpe-Ziegler reaction) was performed. The biological activity of the two series was studied in vitro. Their versatility for pharmaceutical purposes was reported, where they displayed remarkable activities against selected pathogenic microorganisms; *Bacillus subtilis*, *Staphylococcus aureus* (Gram positive bacteria), *Escherichia coli*, *Pseudomonas aeruginosa* (Gram negative bacteria) and *Aspergillus flavus*, *Candida albicans* (fungi) with various degrees related to their chemical structures.

**Keywords :** thiophene, 2-aminothiazole, compounds, antioxidant, antitumor, antimicrobial

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