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Uses of Cyclohexane-1,4-Dione in the synthesis of heterocyclic compounds incorporating Tetrahydrobenzo[b]Thiophene: Synthesis, characterization and cytotoxicity

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Abstract

Tetrahydrobenzo[*b*]Thiophene derivatives are well known as pharmaceutically active compounds and many of them are used as anti-cancer drugs. The aim of this work is to synthesize Tetrahydrobenzo[*b*]Thiophene derivative as a key starting material, use it for further heterocyclization through reaction with different reagents and then study thier cytotoxicity and kinase inhibition. 2-Amino-6-oxo-4,5,6,7-tetrahydrobenzo[*b*]thiophene-3-carbonitrile (**3**) was prepared from the reaction of cyclohexan-1,4-dione with elemental sulfur and malononitrile in1,4-dioxane containing a catalytic amount of triethylamine. The latter compound reacted with triethylorthoformate and either malononitrile or ethyl cyanoacetate in 1,4-dioxane in presence of triethylamine afforded 4*H*-thieno[2,3-*f*]chromene **10a,b.** Also, the reaction of compound (**3**) with phenylisothiocyanate in dimethylformamide in presence of potassium hydroxide followed by addition of either α-chloroacetate or ethyl chloroacetate afforded fused thiophene and thiazole derivatives, respectively. .

Biography:

Nadia Y. Megally Abdo has completed her PhD at the age of 33 years from Ain Shams University, Cairo, Egypt and postdoctoral studies from Alexandria University, Faculty of Education. She is an associate professor of organic chemistry, has received the Scientifc Encouragement Award from the Faculty of Education, Alexandria University in 2018. She has published around 18 papers in reputed journals. .

Speaker Publications:

1. "Synthesis of novel 1, 2, 4-triazoles, triazolothiadiazines and triazolothiadiazoles as potential anticancer agents"
2. "Furocoumarin and quinolone alkaloid with larvicidal and antifeedant activities isolated from Ruta chalepensis leaves"
3. "Synthesis and anticancer evaluation of 1, 3, 4-oxadiazoles, 1, 3, 4-thiadiazoles, 1, 2, 4-triazoles and Mannich bases"
4. "Synthesis, characterization, antimicrobial screening and free-radical scavenging activity of some novel substituted pyrazoles"
5. "Isolation and structure elucidation of antioxidant compounds from leaves of Laurus nobilis and Emex spinosus"

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