بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Green Synthesis of Some Novel Bis-Heterocycles of Expected Biological Activity

Thesis Submitted by

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By

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﴿بِسْمِ اللَّـهِ الرَّحْمَـٰنِ الرَّحِيمِ﴾

فَأَمَّا الزَّبَدُ فَيَذْهَبُ جُفَآءً
وَأَمَّا مَا يَنفَعُ النَّاسَ
فَيَمْكُثُ فِي الأَرْضِ

صَدَقَ اللهُ العَظِيم

[الرعد 17]

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Waleed El Enany

Aim of the work

The interest in these bis-heterocycles is due to its powerful biological activity than the mono-heterocyclic analogs. Furthermore, many derivatives of bis-pyrazole and bis-thiadiazole have pharmaceutical, agrochemical and many other applications, including antibacterial, fungicidal, tuberculostatic, antiamoebial and plant development regulatory properties.

Some reports showed that several 1,3,4-thiadiazole derivatives have potential antihypertensive activity. Which led us to synthesis of a new series of *bis*-thiadiazoles as anti-hypertensive α-blocking agents.

After all of the above, we had to use green chemistry for synthetic some novel *bis*-thiazoles and *bis*-thiadiazoles by using cross-linked chitosan (CLCS) and its MWCNTs (CLCS/MWCNTs) composite as ecofriendly biocatalyst.

Content

Abstract

Bis-thiadiazole derivatives were synthesized in high yield *via* the reaction of 2,2'-terephthaloyl bis(N-phenylhydrazinecarbothioamide) with a variety of hydrazonoyl chlorides in ethanol containing catalytic amounts of TEA. The molecular docking of the most active derivative 15b against the human dopamine D3 receptor was performed by the Molecular Operating Environment (MOE 2014. 0901) program. Moreover, a novel series of *bis*(1,3,4-thiadiazole) derivatives were synthesized as a sole product in one step methodology by reaction of bis-hydrazonoyl chloride with many of hydrazinecarbodithioate derivatives **214, 218_{a-e}, 223_{a-e} and 228**. Compounds **234_c, 236_d, 232_b** and **234_d** were the most active (IC_{50} values of 0.37 ± 0.15, 0.93 ± 0.32, 1.03 ± 0.45 and 3.52 ± 0.43 µg/mL, respectively) against human breast carcinoma cell line (MCF-7) and compounds **234_c, 236_d, 232_b** and **234_d** were the most active (IC_{50} value of 0.38 ± 0.12, 0.88 ± 0.46, 2.15 ± 0.16 and 2.47 ± 0.44 µg/mL, respectively) against the human hepatocellular carcinoma cell line (HepG-2).

To reach what we want from that study, we have aminohydrazide Cross-Linked chitosan (CLCS) and its MWCNTs (CLCS/MWCNTs) composite as ecofriendly biocatalysts for synthesis of some novel bis-thiazoles and bis-thiadiazoles. CLCS/MWCNTs composite was characterized by a greater surface area and a higher thermal stability than CLCS. Thus, CLCS/MWCNTs composite was served as a powerful ecofriendly basic biocatalyst under ultrasonic irradiation in the synthesis of three novel series of 1,2-bis(2-(4-methyl-5-(aryldiazenyl)thiazol-2-yl)hydrazono)-1,2-diphenylethane **241_{a-g}**, 2,2'-(2,2'-(1,2-diphenylethane-1,2-diylidene)bis-(hydrazin-1-yl-2-ylidene))-bis(5-(2-arylhydrazono)thiazol-4(5H)-one) **244_{a-e}** and 1,1'-(5,5'-((1,2-