الآيـة

بسم الله الرحمن الرحيم

(أَمَّنْ هُوَ قَانِتٌ آنَاءَ اللَّيْلِ سَاجِدًا وَقَائِمًا يَحْذَرُ الْآخِرَةَ وَيَرْجُو رَحْمَةَ رَبِّهِ قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ إِنَّمَا يَتَذَكَّرُ أُولُو الْأَلْبَابِ)(٩)

صدق الله العظيم

سورة الزمر (الآية ٩)

DEDICATION

I thanks Allah to give me strength and healthy to complete this research.

I dedicate my dissertation work to my family , Firstly the memory of my mother: **Aisha Ahmed Khalifa** .

A special and deeply dedication and feeling of gratitude to my loving , wonderful, amazing and great father **Mohammed Osman Fadl Almola Altoom**.

My sisters **Mayada** and **Zeinab** have never left my side and are very special.

Lastly I dedicate This dissertation to every one who loved and cared about me.

ACKNOWLEDGEMENT

I am heartily thankful to my supervisor, **prof. Mohamed Abdelkarim Mohamed** for the continuous support of my Ph.D study and research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor for my Ph.D study.

Besides my advisor, I would like to thank the rest of my thesis committee: **Ustaz. Abd Alfatah Mohamod Bashir** , **Dr.Abd Algafar Mohammed Abd Algafar** , **Ustaz: Mohammed Aisa** and **Ustaz: Salah Ahmed Ibrahim** for their help in the Analysis of synthesized compounds.

I must acknowledge as well my friends and teachers, who assisted and supported my research and writing efforts over the years. Especially, I need to express my gratitude and deep appreciation to **Hiba Hassan Taha** whose friendship, hospitality, knowledge, and wisdom have supported, enlightened, and entertained me over the many years of our friendship.

Also, I offer my regards and blessings to all those who supported me in any respect during the completion of the project

Lastly but not the least, I would like to thanks **my family** for supporting me spiritually throughout my life. Special thanks to my father **Mohmmed Osman Fadl Almola** whose words of encouragement and push for tenacity ring in my years .There is no words can express my love and feeling to thanks him. He taught me how to face the life with patience and brave, he always quietly supported me in every step in my life, always been there for me ,loved ,cared and provided for me. He is a source of my strength and this research cannot complete without him, he is

a sun of my life and greatest gift I ever had came from allah. Every success was happen in my life because of him ,.I am so lucky to have him as my father and I carry him in my heart until I die.

Abstract

Fifteen Mannich bases and sixteen Schiff bases were synthesized . A general synthesis protocol was adopted . The following bases were synthesized :

2-dimethylaminomethyl-5,5-dimethylcyclohexane-1,3-dione (**1**) , 2-diethylaminomethyl-5,5-dimethylcyclohexane-1,3-dione (**2**), 2-pyrrolidinomethyl-5,5-dimethylcyclohexane-1,3-dione (**3**), 2-morpholinomethyl-5,5-dimethyl-cyclohexane-1,3-dione (**4**), 2-piperidinomethyl-5,5-dimethylcyclohexane-1,3-dione (**5**) , 2-diphenylaminomethyl-5,5-dimethylcyclohexane-1,3-dione (**6**) , 2-piperidinomethyl-5-nitrophenol (**7**) , 2-diphenylaminomethyl-3-nitrophenol (**8**) , 2-piperidinomethyl-4-chloro-5-methylphenol (**9**) , 2-diphenylaminomethyl-4-chloro-5-methylphenol (**10**) , 2-N-methylpiperazinomethyl-5,5-dimethylcyclohexan-1,3-dione (**11**) , 3-piperidinomethylpentane-2,4-dione (**12**) , 2-diphenylaminomethyl-4-aminophenol (**13**) , 2-N-methylpiperzinomethyl-5-nitrophenol (**14**) , 2-morpholinomethyl-5-nitrophenol (**15**) , (E)-2[(dimethylaminomethyl)-5,5-dimethyl-3-(phenylimino)]cyclohexanone (**16**) , (E)-2-[(diethylaminomethyl)-5,5-dimethyl-3-(phenylimino)]cyclohexanone (**17**) , (E)-5,5-dimethyl-3-(phenylimino)-2-(pyrrolidin-1-yl)cyclohexanone (**18**) , (E)-N-[2-(dimethylaminomethyl)-5,5-dimethyl-3-oxocyclohexylidene]benzamide (**19**) , (E)-N-[2-(diethylaminomethyl)-5,5-dimethyl-3-oxocyclohexylidene]benzamide (**20**) , (E)-N-[5-dimethyl-3-oxo(pyrrolidin-1-methyl)cyclohexylidene]benzamide (**21**), (E)-4-[2-(dimethylaminomethyl)- 5,5-dimethyl-3-oxocyclohexylideneamino]benzoicacid (**22**) , (E)-4-[2-(diethylaminomethyl)- 5,5-dimethyl-3-oxocyclohexylideneamino]benzoicacid (**23**)

, (E)-4-[5,5-dimethyl-3-oxo-2-(pyrrolidin-1-ylmethyl)cyclohexylideneamino]benzoicacid (**24**) , (Z)-5,5-dimethyl-2-(morpholinomethyl)-3-(phenylimino)cyclohexanone (**25**) , (E)-4-[5,5-dimethyl-2-(morpholinomethyl)]-3-(oxocyclohexylideneamino)benzene sulfonic acid **(26**) , (E)-5,5-dimethyl-3-(phenylimino)-2-(piperidin-1-ylmethyl)cyclohexanone (**27**) , (E)-2-(diphenylaminomethyl)-5,5-dimethyl-3-(phenylimino)cyclohexanone(**28**) , (Z)-3-[(2-aminomethylimino)-2-(diphenylaminomethyl)]cyclohexanone(**29**) , (Z)-5,5-dimethyl-2-(morpholinomethyl)-3-(3-nitrophenylimino)cyclohexanone **(30**) , (Z)-2-(diphenylaminomethyl)-5,5-dimethyl-3-(3-nitrophenylimino)cyclohexanone (**31**) . The structure of the intermediates and targeted molecules was elucidated by a combination of spectral techniques (IR, ^{1}HNMR, Ms).

The targeted molecules were evaluated for antibacterial and antifungal activity. Compounds 9,10,13,14,15,25,29 and 31 showed significant antimicrobial activity. However, compounds 11 and 30 showed significant antifungal activity . Compounds 12 and 22 showed moderate antimicrobial activity, but compounds 3,7 and 16 exhibited only antibacterial activity . However, compound 5 exhibited only antifungal activity .Compounds 1,2,4,6,8,17,18,19,20,21,23,24,26,27 and 28 did not show any antimicrobial activity.

المستخلص

١٥ قواعد مانيخ و١٦ قواعد شيف تم تصنيعهم ، باستخدام طريقة عامة لتصنيع قواعد مانيخ وشيف .

القواعد التالية تم تحضيرها :

2-dimethylaminomethyl-5,5-dimethylcyclohexane-1,3-dione (**1**) , 2-diethylaminomethyl-5,5-dimethylcyclohexane-1,3-dione (**2**), 2-pyrrolidinomethyl-5,5-dimethylcyclohexane-1,3-dione (**3**), 2-morpholinomethyl-5,5-dimethyl-cyclohexane-1,3-dione (**4**), 2-piperidinomethyl-5,5-dimethylcyclohexane-1,3-dione (**5**) , 2-diphenylaminomethyl-5,5-dimethylcyclohexane-1,3-dione (**6**) , 2-piperidinomethyl-5-nitrophenol (**7**) , 2-diphenylaminomethyl-3-nitrophenol (**8**) , 2-piperidinomethyl-4-chloro-5-methylphenol (**9**) , 2-diphenylaminomethyl-4-chloro-5-methylphenol (**10**) , 2-N-methylpiperazinomethyl-5,5-dimethylcyclohexan-1,3-dione (**11**) , 3-piperidinomethylpentane-2,4-dione (**12**) , 2-diphenylaminomethyl-4-aminophenol (**13**) , 2-N-methylpiperzinomethyl-5-nitrophenol (**14**) , 2-morpholinomethyl-5-nitrophenol (**15**) , (E)-2[(dimethylaminomethyl)-5,5-dimethyl-3-(phenylimino)]cyclohexanone (**16**) , (E)-2-[(diethylaminomethyl)-5,5-dimethyl-3-(phenylimino)]cyclohexanone (**17**) , (E)-5,5-dimethyl-3-(phenylimino)-2-(pyrrolidin-1-yl)cyclohexanone (**18**) , (E)-N-[2-(dimethylaminomethyl)-5,5-dimethyl-3-oxocyclohexylidene]benzamide (**19**) , (E)-N-[2-(diethylaminomethyl)-5,5-dimethyl-3-oxocyclohexylidene]benzamide (**20**) , (E)-N-[5-dimethyl-3-oxo(pyrrolidin-1-methyl)cyclohexylidene]benzamide (**21**), (E)-4-[2-(dimethylaminomethyl)- 5,5-dimethyl-3-oxocyclohexylideneamino]benzoicacid (**22**) , (E)-4-[2-(diethylaminomethyl)- 5,5-dimethyl-3-oxocyclohexylideneamino]benzoicacid (**23**)

, (E)-4-[5,5-dimethyl-3-oxo-2-(pyrrolidin-1-ylmethyl)cyclohexylideneamino]benzoicacid (**24**) , (Z)-5,5-dimethyl-2-(morpholinomethyl)-3-(phenylimino)cyclohexanone (**25**) , (E)-4-[5,5-dimethyl-2-(morpholinomethyl)]-3-(oxocyclohexylideneamino)benzene sulfonic acid **(26**) , (E)-5,5-dimethyl-3-(phenylimino)-2-(piperidin-1-ylmethyl)cyclohexanone (**27**) , (E)-2-(diphenylaminomethyl)-5,5-dimethyl-3-(phenylimino)cyclohexanone(**28**) , (Z)-3-[(2-aminomethylimino)-2-(diphenylaminomethyl)]cyclohexanone(**29**) , (Z)-5,5-dimethyl-2-(morpholinomethyl)-3-(3-nitrophenylimino)cyclohexanone **(30**) , (Z)-2-(diphenylaminomethyl)-5,5-dimethyl-3-(3-nitrophenylimino)cyclohexanone (**31**) .

النواتج الوسيطه والنهائية تم تحديد تركيبها باستخدام التقنيات المطيافية (IR, ^{1}HNMR, Ms) .

أيضا أجرى إختبار للمركبات المصنعه لمعرفه مدى فعاليتها كمضادات للبكتريا والفطريات . المركبات 9,10,13,14,15,25,29,31 أعطت فعاليه عاليه ضد الميكروبات ، بينما المركبات ١١و ٣٠ أعطت فعالية عالية ضد الفطريات و المركبان ١٢ و٢٢ أعطيا فعالية متوسطة ضد الميكروبات ، بينما المركبات ٣،٧،١٦ أعطت فعالية فقط ضد البكتريا . في حين أن المركب ٥ أعطي فعالية فقط ضد الفطريات. المركبات 1,2,4,6,8,17,18,19,20,21,23,24,26,27,28 لم تكن فعاله ضد الميكروبات .

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