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Abstract

The pyrazoles and barbiturates are heterocyclic compounds containing two atoms of nitrogen. These compounds were reported to possess various biological activities such as anticancer, antimicrobial, antifungal, antipyretic, anticonvulsant, antidepressant and other nervous system affecting activities. Preparation, reactions, and properties of these compounds are dealt with in chapter one.

Twenty final compounds were prepared in this work, together with their corresponding intermediates. The appropriate retrosynthetic analysis of the compounds revealed certain possible route. This route required two steps, the reaction between aryl diazonium salts and diethylmalonate to form the intermediate aryl diazo diethyl malonate compound.The reaction between the intermediate compounds and hydrazine Form pyrazoles the second reaction between urea or thiourea to form barbiturates and thiobarbiturates The reaction course was followed by TLC and the products were identified by U.V, I.R,^{1}H-NMR and MS.

The retrosynthetic analysis of the target compounds was discussed in chapter three together with suitable mechanisms for each different reaction. The spectral data were interpretated and discussed in the same chapter. Some of the intermediates and final compounds were tested for their antimicrobial activity . The compounds showed activity when tested in different concentration , against two strains of gram positive and gram negative bacteria. The standard organisms are *Staphylococcus aureus, Bacillus subtilis, Escherichia coli* and *Pseudomonas aeruginosa*.

□□□□□□

البيرازولات والباربتورات هي من المركبات الحلقية الغير متجانسة وتحتوي كل منهما على ذرتي نتروجين في الحلقة. عرفت هذه المركبات بأن لها انشطه بيولوجيه، مضادات حيوية للميكروبات والفطريات ومضادات لضيق الأوعية الدموية ومسكنات وكمواد فعالة في الأنظمة العصبية ، ومضادات للسرطان.

تم تحضير عشرين مركب نهائي و عدد من المركبات الوسيطة ضمن هذه الدراسة. عملية التخليق الضديدي أتبعت في هذه الدراسة ومنها تم التوصل إلى طريقتين للحصول على المركبات المستهدفة. الطريقة الأولى وتكون في خطوتين: تفاعل الأمين مع الداي إيثايل مولونيت للحصول علي المركبات الوسطى. تفاعل المركب الوسطى مع أحد الهيدرازينات في الخطوة الثانية لعطاء (البيرازولات).

الطريقة الثانية: تفاعل المركب الوسطى مع اليوريا أو الثيوريا لعطاء الباربيتورايت. هذه التفاعلات تم تتبعها بواسطة كروماتوغرافيا الطبقة الرقيقة و تم تحديد المركبات النهائية والوسطية بواسطة الأشعة فوق البنفسجية ، الأشعة تحت الحمراء ، طيف الرنين النووي المغنطيسي ، طيف الكتلة.

عملية التخليق الضديدي التحليلي وميكانيكيات التفاعل تم مناقشتها بالتفصيل في الفصل الثاني ، البيانات الطيفية تم مناقشتها في ذات الفصل. بعض المركبات الوسطيه والنهائيه المحضرة وجدت أنها ذات فعاليه ضد الميكروبات.

اظهرت المركبات فعاليه عند إختبارها ضد نوعين من الإستارين موجبة الجرم وسالبة الجرام من البكتريا في تراكيز مختلفه، و هي .(*Pseudomonas aeruginosa*. *Staphylococcus aureus*, *Bacillus subtilis*, and *Escherichia coli*).

كما اوضحت الدراسة ان بعض المركبات ذات فعاليه عالية .

Table of contents

		Page
	Acknowledgement	i
	Abstract	ii
	الملخص	iii
	List of tables	vi
	List of schemes	viii
	List of abbreviations	xi
	Chapter One: Introduction	
1.	Introduction	1
1.1.	Pyrazoles	1
1.1.1.	Preperation of pyrazole	1
1.1.2.	Porpeties of pyrazole	2
1.1.3.	Syntheis of pyrazole derivatives	4
1.1.4.	Properties of pyrazole derivatives	6
1.1.5	The biological activities of pyrazole derivaties	8
1.2	Barbiturates	9
1.2.1	Chemical and physical properties	9
1.2.2	Preparation of barbituric acid	9
1.2.3	Barbiturates	10
1.2.4	Properties of Barbiturates	11
1.2.5	Preparation of Barbiturates	11
1.2.6	Structure Activity Relationships	12
1.2.7	Biological effects of the barbiturates	13
1.3	Active methylene compounds	13
1.3.1	Reactions of active methylene compounds	14
1.3.2.	The formation of enoles and enolate anions	15
1.3.3	Alkylation of relatively acidic active methylene compounds	15
1.3.4	Alkylation of ketones and nitrites	15
1.3.5	Michael reaction	16
1.3.6	The formation and alklation of Enamines	16
1.4.	Aim and Objectives	17
	Chapter Two: Discussion	
2.	Discussion	18
	Chapter Three: Experimental	
3.	Experimental	26
3.1	Materials and instruments	26
3.1.1.	Materials	26
3.1.1.1.	Common reagents	26
3.1.1.2.	Chemicals	26
3.1.1.3.	Solvents	26
3.1.1.4.	Thin layer chromatography(TLC)	27

3.1.2	Instruments	27
3.1.2.1.	Infrared spectroscopy (IR)	27
3.1.2.2.	Ultra Violet/ visible spectroscopy (UV-Vis)	27
3.1.2.3.	Nuclear magnetic resonance (NMR)	27
3.1.2.4	Mass spectroscopy (MS)	27
3.1.2.5	General instruments	27
3.1.2.6.	Glassware	27
3.2.	Methods	28
3.2.1	Preparation of aryldiazo diethylmalonate (I, V,X, XV, XX)	28
3.2.2	Preparation of 4-aryldiazo-2-aryl carbonyl-pyrazol-3-5 dione (II,IV,VI,VII,VIII,XI,XII.XVII,XXIII)	28
3.2.3	Preparation of aryl diazo barbiturate acid: (III,VII,XIII,XVII,XXI)	29
3.2.4	Preparation of p-aminobenzene sulphanlamide	29
3.2.5	Antibacterial activity: Test organism	30
	Conclusion and recommendations	73
	Referecnes	74
	Appendixes	80

List of tables

		Page
Table 3-1(a)	Table 3-1(a): Chemical names of aryl diazo diethyl malonates	35
Table 3-1(b)	Chemical names of (4-diazo aryl)1- (4-carbonyl pyridyl) pyrazol-3,5-dione compounds	36
Table 3-1(c)	Chemical names of (4- aryl diazo) -1-(2,4-dinitrobenzene)-pyrazol-3,5-dione	37
Table 3-1(d)	Chemical names of diazo aryl-pyrimidine-2,4,6 trione	38
Table 3-1(e)	Chemical names of diazo aryl- thiopyrimidine-4,6-dione	39
Table 3-2(a)	Reaction condition of aryl diazo diethylmalonate	40
Table 3-2(b)	Reaction condition of (4-diazo aryl)1- (4-carbonyl pyridyl) pyrazol-3,5-dione compounds	41
Table 3-2(c)	Reaction condition of (4- aryl diazo) -1-(2,4-dinitrobenzene)-pyrazol-3,5-dione	42
Table 3-2(d)	Reaction condition of diazo aryl-pyrimidine-2,4,6 trione	43
Table 3-2(e)	Reaction condition of diazo aryl- thiopyrimidine-4,6-dione	44
Table 3-3(a)	TLC data (R_f values) of Aryl diazo diethymalonate:	45
Table 3-3(b)	TLC data (R_f values) of (4-diazo aryl)1- (4-carbonyl pyridyl) pyrazol-3,5-dione compounds	46
Table 3-3(c)	TLC data (R_f values) of (4- aryl diazo) -1-(2,4-dinitrobenzene)-pyrazol-3,5-dione	47
Table 3-3(d)	TLC data (R_f values) of diazo aryl-pyrimidine-2,4,6 trione	48
Table 3-3(e)	TLC data (R_f values) of diazo aryl- thiopyrimidine-4,6- dione	49
Table 3-4(a)	IR data of the intermediate aryl diazo diethylmalonate	50
Table3-4 (b)	IR data of the (4-diazo aryl)1- (4-carbonyl pyridyl) pyrazol-3,5-dione compounds	51
Table 3-4(c)	IR data of (4- aryl diazo) -1-(2,4-dinitrobenzene)-pyrazol-3,5-dione	52
Table 3-4(d)	IR of diazo aryl-pyrimidine-2,4,6 trione	53

Table 3-4(e)	IR data of diazo aryl- thiopyrimidine-4,6- dione	54
Table 3-5(a)	NMR data of the intermediate aryl azo diethylmalonte.	55
Table 3-5(b)	NMR data of (4-diazo aryl)1- (4-carbonyl pyridyl) pyrazol-3,5-dione compounds	56
Table 3-5(c)	NMR data of (4- aryldiazo) -1-(2,4-dinitrobenzene)-pyrazol-3,5-dione	57
Table 3-5(d)	NMR data of diazo aryl-pyrimidine-2,4,6 trione.	58
Table 3-5(e)	NMR data of diazo aryl- thiopyrimidine-4,6- dione.	59
Table 3-6 (a)	UV data of the Intermediate-Aryl diazo dithyl malonate	60
Table 3-6 (b)	UV data of (4-diazo aryl)1- (4-carbonyl pyridyl) pyrazol-3,5-dione compounds	61
Table 3-6 (c)	UV data of the (4- aryl diazo)-1-(2,4-dinitrobenzene)-pyrazol-3,5-dione	62
Table 3-6 (d)	UV data of diazo aryl-pyrimidine-2,4,6 trione	63
Table 3-6 (e)	UV data of diazo aryl- thiopyrimidine-4,6- dione	64
Table 3-7 (a)	MS. data of 2-(4-carboxyl pyridine pyrazol-3, 5-dione)azo-4-sulphadoxine	65
Table 3-7 (b)	MS data of -5-barbitric acid azo-4-aminobenzoic acid	66
Table 3-7 (c)	MS. data of 2-diethylmalonate azo-1-naphthyl amine	67
Table 3.8(a)	Inhibition zone diameter in mm for *Pseudomonas aeruginosa*	68
Table 3.8(b)	Inhibition zone diameter in mm for *Staphylococcus aureus*	69
Table 3.8(c)	Inhibition zone diameter in mm for *Escherichia coli*	70
Table 3.8(d)	Inhibition zone diameter in mm for *Bacillus subtilis*	71

List of Schemes

		Page
Scheme 3-1	Chemical structure of the prepared Aryl diazo diethyl malonate	30
Scheme 3.2	Chemical structure of the prepared (4- aryl diazo) -1-(2,4-dinitrobenzene)-pyrazol-3,5-dione	31
Scheme 3.3	Chemical structure of the prepared (4-diazo aryl)1- (4-carbonyl pyridyl) pyrazol-3,5-dione compounds	32
Scheme 3.4	Chemical structure of the prepared 5-aryldiazo-pyrimidin-2,4,6-triones	33
Scheme 3.5	Chemical structure of the prepared 5-aryldiazo-2-thiopyrimidine-4,6-dione	34

List of abbreviations

Ch = Chloroform .

Pet = petroleum ether .

EtoAc = ethyl acetate .

St.Vib = Stretching vibration .

S = Singlet .

bs = board singlet .

m = multiplet .

t = triplet .

q = quartet .