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Synthesis and biological activity of acetylene compounds derivatives of benzoin

Moayd. N. Mohamned
Department of Chemistry – College of Science –Al-Qadisiyah University -Iraq
Corresponding author email: sci.chem.mas.20.11@qu.edu.iq

Zahraa Hamza Najem
Department of Chemistry – College of Science –Al-Qadisiyah University -Iraq
Email: moayad.alshbani@qu.ed.id

***Abstract*---**Paper involves and some acetylene compounds from benzoin 4,4-dimethyl benzoin, 4-methyl benzoin, 4,4-dichloro benzoin, 4,4-dibromo benzoin and 4-dimethyl amino benzoin treated with 3-bromo propyne yielded series of new acetylene compounds were characterized by FTIR, 1HNMR and C-H-N. The compounds good activity of antibacterial.

***Keywords*---**benzoin, 3-bromo propyne, ethanol, sodium hydroxide.

Introduction

Acetylene group have good biological activity and serve as the important until of pharmaceuticals intermediate to take action in the quest for Noves antibacterial (1,2,3). The compound contains acetylene group (4,5,6) used to Parkinson disease. Such as inhibiting drugs to work acetylcholine (7) such as reaction carbohydrate with acetylene give ether acetylene group in nucleosides (8,9).and the acetylene group enters the tow reaction tri bounding and hydrogen acid. In this paper synthesized series new acetylene compounds from benzoin. The new derivatives were indeufied by C.H.N analysis, FTIR and 1HNMR spectrum. Another study includes the biological activity.

Materials and Methods

Physical measurement

Unless otherwise stated the following generalization melting point, C.H.N, FTIR and ^{1}HNMR

Synthesis of benzoin (10,11,12)

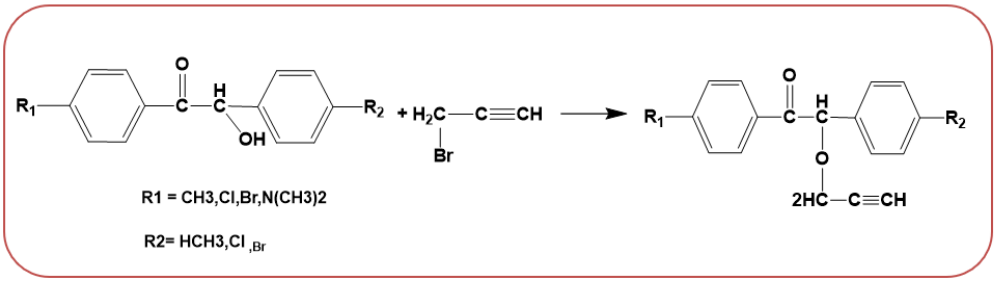
Dissolved (0.01mole) benzaldehyde substitution group (methyl, bromo, chloro and dimethyl amine) in30ml ethanol the mixture was refluxed (15min) and added drops (NaCN 3gm in 10ml water) to mixture and refluxed (3h). The solution was then cold (24h) and crystallization by ethanol.

Synthesis of acetylene compound

Dissolved (0.01 mole) benzoin in 50ml benzene and added (5gm NaOH dissolved in 25 ml water in the form of drops –to mixture reflexed (3hour) at temperature 70C. then water is added and the product is exacted by benzene (3*15ml) benzene evaporate and crystallization.

Results and Discussion

The synthesis of acetylene compounds by reaction benzoin with 3-bromo propyne yielded new compound.



Schem 1 . The mechanics of preparing acetylene compounds

The acetylene compound were characterized using M.P and C.H.N analysis (Table 1) FTIR ,1HNMR, (Table2,3) and anti-bacterial activity (Table 4) The newly acetylene compound disappearance spectral (OH) in Benzoin spectral (OH) AT 3500cm-1 and emergence of absorption in 2180cm-1 the ether acetylene bonding very important the biological activity.

Table (1)
analytical date of acetylene compounds

Compound	R1	R2	Formula	M.P	Calculated % Found		
					C	H	N
4,4` dimethyl benzoin	CH3	CH3	C16H16O2	87	79.8 79.06	6.64 6.59	----
4-methyl benzoin	CH3	H	C15H14O2	130	79.22 79.10	6.13 6.09	----
4,4` dichloro benzoin	Cl	Cl	C14H10O2Br2	86	45.21 44.9	2.5 2.3	----
4,4` di bromo	Br	Br	C14H10O2Cl2	72	80.8	4.3	----

benzoin					79.44	3.89	
4- dimethyl benzoin	N(CH3)2	H	C16H17NO2	163	75.3 74.9	6.7 6.4	5.5 5.1

Table (2)
FTIR OF compounds

Compound	υ C=C	C=O	C≡C	
I a	1610	1640	2140	C—Cl 660
I b	1600	1630	2180	
I c	1580	1645	2200	C—Br 740
I d	1600	1635	2210	
I e	1605	1670	2160	

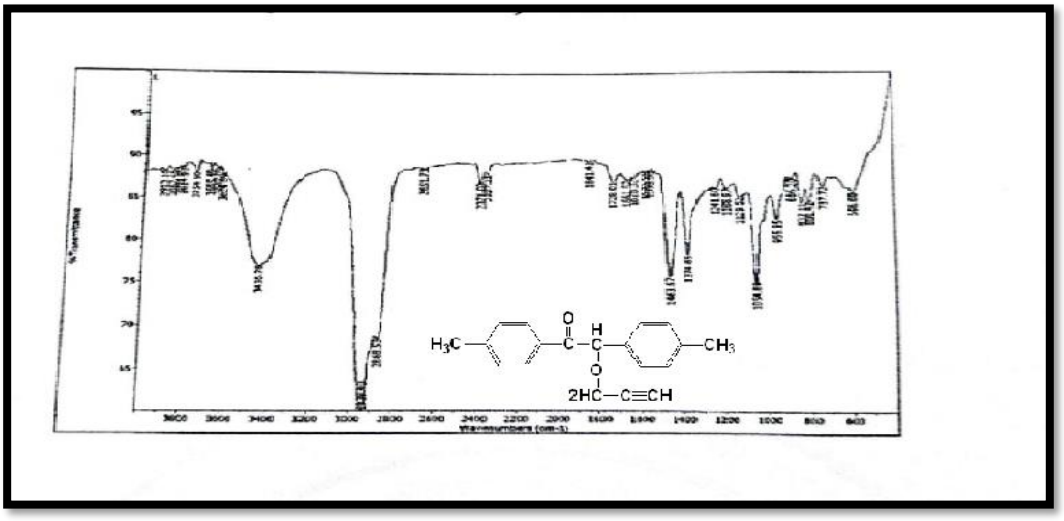


Figure 1. (FT-IR)Spectrum of the compound(B1)

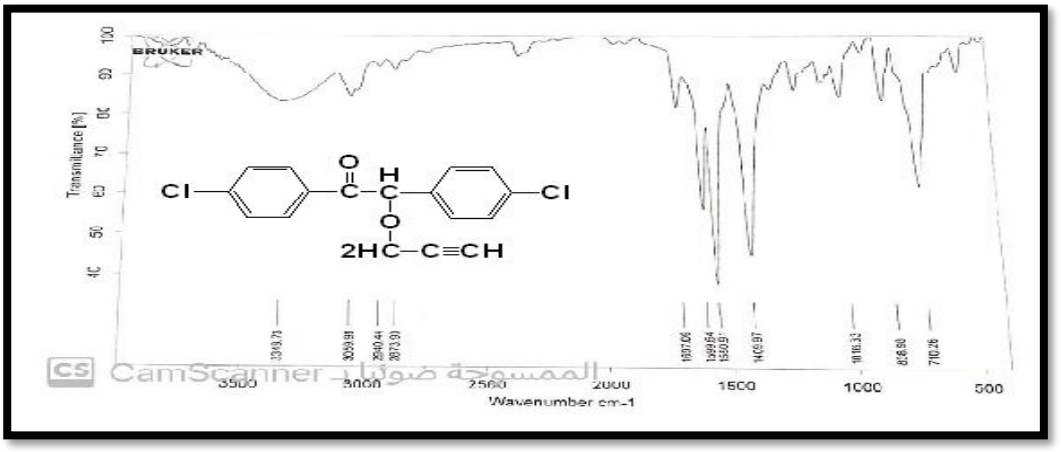


Figure 2. (FT-IR)Spectrum of the compound(B3)

Table (3)
^{1}HNMR OF compounds

compound	1HNMR
I a	1-4(6-H) 2CH3 , 1-9(1- H)C≡CH , 6.7-7.1(8-H)2-Ph
I b	1,3(3-H)CH_3 , 2.1(1-H)C≡CH , 7.1-7.3(9H)2-Ph
I c	2(1-H)C≡CH , 6.6-7.2(8-H)2-Ph
I d	2.1(1-H)C≡CH . 7.8-7.21(8-H)2-Ph
I c	2.2(1-H)C≡CH , 3.4N$(CH_3)_2$, 7.3(9-H)2-Ph

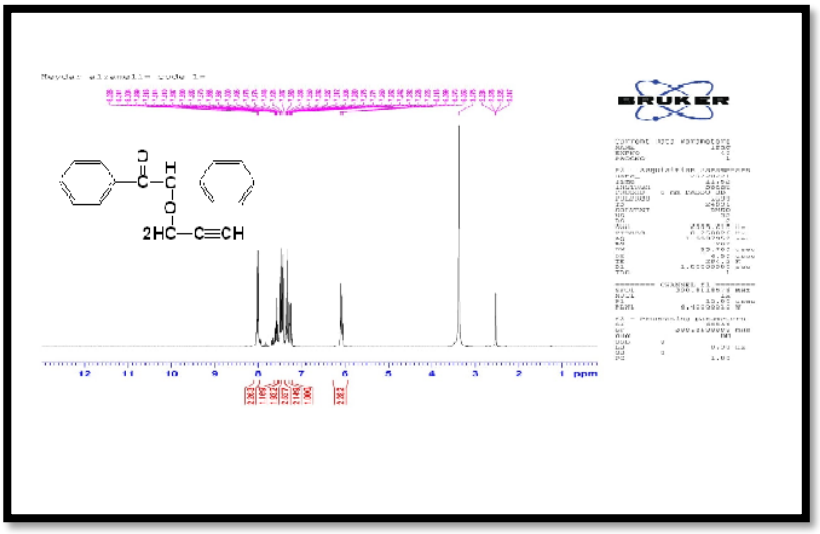


Figure 3. (1HNMR)Spectrum of the compound(B2)

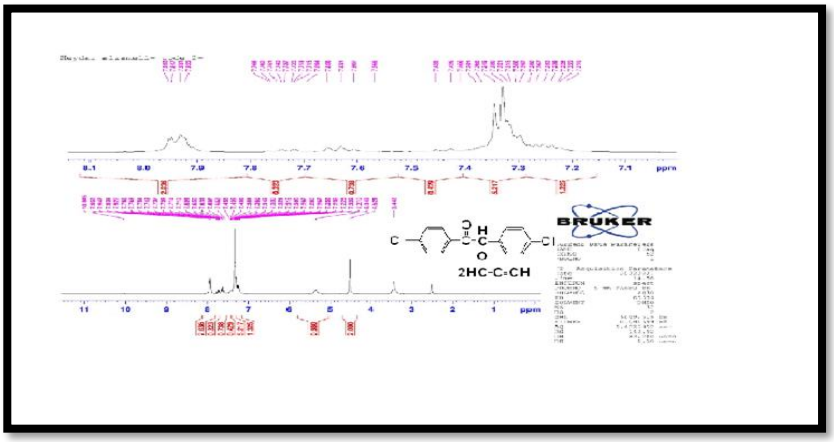


Figure 4 . (1HNMR)Spectrum of the compound(B3)

Table (4)
Biological activity of new acetylene compound

Compound	Staphylococcus aureus	Salmo lea type
I a	15	13
I b	22	17
I c	24	18
I d	15	6
I e	20	12

Two types of bacteria infect Humans were studied and results give according to above table.

Conclusion

In conclusion a series of symmetrical and unsymmetrical benzoin with propargyl bromide give new ether acetylene compounds the reaction getting good yield and the products may be used as medical compounds in future .

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