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Synthesis some of ether acetylene compounds derivative of pyrazin and study of the biological activity

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Abstract- *In This paper involves synthesis of some new ethers acetylene compounds Derivative form pyrazine , by reaction of 2,5- di phenol -3,6-di tolune pyrazine,2,5-diphenol-3,6-di phenyl pyrazine , 2,5-diphenol-3,6-dichloropyrazine,2,5-diphenol-3,6-dibromo pyrazine ,2,5-di phenol -3,6-di nitro pyrazine treated with -3-bromo propyne yield series of new ethers acetylene pyrazin compounds were characterized by FT-IR ,H^1NMR ,C^{13}NMN and C.H.N in this study of the effect compound in the two types of bacteria isolated from amdical condition (human)*

key words: pyrazine , 3- bromo propyne benzoin Alanine

Introduction

Pyrazine are considered as important class of hetro cyclic compounds scince they are structural subunits of various biologically active natural Products and are valuable synthetic precursor and pharmaceuticals[(1,2,3,4)] with anti –tacteria ,anti, fungal, anti-in flam matory and anti-to mol activities and can be use as apetide mimetic or enzyme inhibitors in addition to their convection acetylene group increases biological activity[(5,6,7)] the compound contains the acetylene group used toparkinson disease [(8,9)] such as inhibiting drugs to work acetyl choline and used the ethers acetylene pyrazine of polymers[(10)] .

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Experimental[10,11]

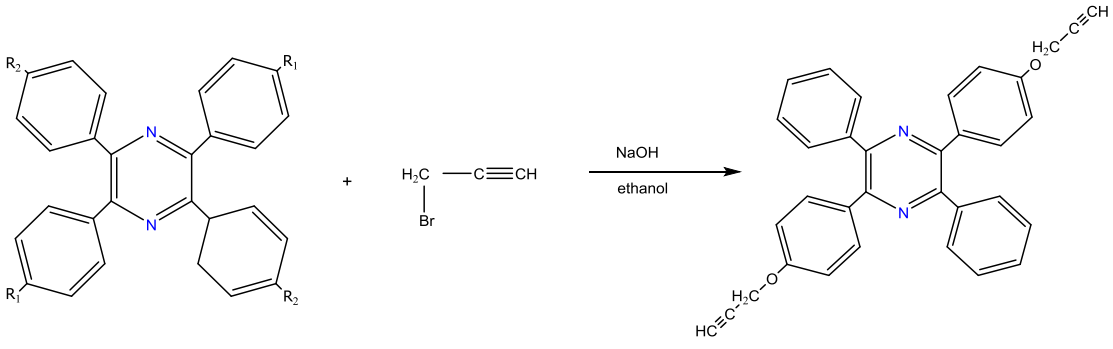
1-synthesis of the pyrazin by fusion symmetrical benzoin or unsymmetrical (0.01) mole was treated with α –amino acid , α - alanine (0.01)mole homogeneous mixture and heated on an oil bath until the release of carbon dioxide until the release of carbon dioxide and ammonia (140-180c) .the was add ethanol refluxed (15min) The solution was the cold (24h) and crystallization by ethanol

2-synthesis of acetylene ethers compounds [12,13,14] dis solved (0.01mole) Pyrazine in (5gm NaOH in 20ml water) and 50ml ethanol and stirred for (15min) then added drop-wise 2ml propargyl bromide drop-wise to the Well stirred reaction mixture the which was heated to(60-70c) for (3h).The reaction was stopped and the mixture was cooled to room temperature ,An Ice water was added to the reaction mixture and the crude product was extracted twice by ethylene chloride and crystallization by ethanol .

Results and Discussion

The synthesis of acetylene compounds by reaction pyrazin with 3-bromo

Propyn yielded new compounds



R1=OH

R2=H,CH3,Cl,Br,NO2

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Scheme the mechanism of preparing acetylene compound

The reaction are followed by TLC benzene / methanol (9=1) and new Compounds were characterized using M.P and C.H.N analysis (Table1)FT.IR (Table2) and H^1NM ,C^{13}NMR (Table3,4),Theresult of antibacterid were presented in (Table4) .The newly ethers acetylene compound disappearance spectral (OH) in Pyrazine compounds at 3500cm^{-1} and emeryencey of absorption in 2180cm- the ether acetylene bonding very important the biological activity.

No	R_1	R_2	Formula	M.P ^{0}C	C%	N%	H%
1	OH	CH3	$C_{38}H_{24}N_4O_2$	130-137	C,79.98	N,9.82	H,4.59
2	OH	H	$C_{36}H_{28}N_2O_2$	96-112	C,83.05	N,5.38	H,5.42
3	OH	Cl	$C_{34}H_{22}Cl_2N_2O_2$	110-114	C,72.73	N,4.99	H,3.95
4	OH	Br	$C_{34}H_{22}Br_2N_2O_2$	113-117	C,62.79	N,4.31	H,3.41
5	OH	$N(CH_3)_2$	$C_{34}H_{22}N_4O_6$	مادة لزجة	C,70.10	N,9.62	H,3.81

Table(1)-analytical date of acetylene compounds

Com.No	C=C	C=N	C ≡≡C	
1	1610	1590	2140	
2	1600	1560	2180	
3	1605	1540	2130	C Cl-660
4	1612	1593	2200	C Br-740
5	1617	1565	2100	

Table (2)- FT-IR of compounds

Com. No	^{1}HNMR
1	1.4 $(6H)_2$ CH_3 ,1.9 (1-H)C≡CH ,6.7-7.2 $(8H)_2$ ph
2	1.3 (3H) CH_3, 2.1 (1-H)C≡C , 7.2-7.4 8$(9H)_2$ ph
3	2.1 (1-H) C ≡CH , 6.7 -7.2 $(8H)_2$ ph
4	2.2 (1-H) C≡CH ,7.2 -7.4 $(8H)_2$ ph
5	2.1 (1-H) C≡C ,7.3 -7.5 $(8H)_2$ ph

Table (3) -1HNMR of compounds

Com.No	^{13}CNMR
1	50 ppm CH_2 , C≡C 110 C=N 163 ppm , C–H (ph) 130 ppm
2	25 CH_3 , 52 ppm CH_2 , C≡C 112 C=N 160 , CH (ph) 127
3	27 CH_3 , 50 ppm CH_2 , C≡C 112 C=N 155 , CH (ph) 126 , 40 ppm C–Cl
4	36 CH_3 , 52 ppm CH_2 , C≡C 109 C=N 161 , C–H (ph) 130 ppm C=N ppm 160 , C–Br 47
5	29 ppmCH_3 , 48 ppm CH_3 , C≡C 108 C=N ppm 163 , CH (ph) 132 ppm , C–NO_2 55 ppm

Table (4) -^{13}CNMR of compounds

The results of auti bacterial were presented Table (5) in this study of the effect of the prepared compound in the two types of tcecterial isolated from amedical condition (human) and it has studied and diagnosed and proved their attritutes

Table (5) –Biological activity of newethers acetylene

No	Staphylococcus aureous	Escherichia Coli
1	1.1	0.3
2	2	1.5
3	0	1.2
4	0.6	1
5	1.2	1.1

NOT =(0-6) mm = - (6-9) mm = + (9-12) mm = ++

Conclusion

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

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