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Preparation, characterization and biological activity of some novel Schiff bases

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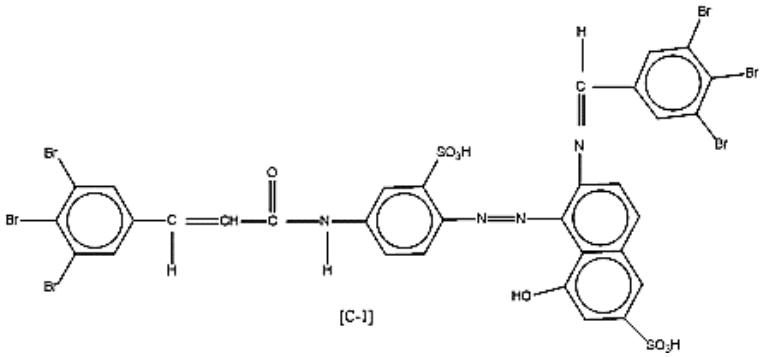
Abstract
The[C-1] was synthesized by reaction of acide red-37 with 3,4,5 tribromobenzaldehyd and[c-2] was synthesized by reaction of sulfamethoxazole with 3,4,5 tribromobenzaldehyd, the compounds [c-1] and [c-2] were characterized by elemental analysis, infrared,^{1}H-NMR and mass spectroscopy. The biological activity were comparedwith amoxicillin as standard.

Keywords: 6-(3,4,5tribromobenzylideneamino)-5-(4-(3-(3,4,5tri bromophenyl)acrylamido)-2-Sulphatophenyl)diazenyl)-4-hydroxynaphthalene-2-sulphonicacid[c-1],4-(2-chloro3,4,5 trimethoxybenzylidene)amino-N-(5-methyl–isoxazol-3yl)-benzene sulfonamide [c-2]

Introduction
Schiff bases are an important class of organic compounds [1]. They were reported by Hugo Schiff in 1864 [2]. Schiff bases are widely studied and used in the fields of organic synthesis and metal ion complex [3, 4]. For a number of reason their physiological and pharmacological activity's [5, 6, 7].
Schiff bases are important compounds owing to their wide range of industrial applications [8]. Schiff`sbases have also been shown to exhibit a broad range of biological activities,including antifungal, antibacterial, antimalarial, anti-proliferative, anti-inflammatory, antiviral & antipyretic properties [9, 10].

Experimental
Instrumentation
Melting point were measured on gallenkamp Electronic melting points apparatus, the elemental analysis was performed on a perkin-Elmer 2400. Infrared spectra were recorded using potassium bromide disks on a pye Unicam SP3-300 infrared spectrophotometer. ^{1}H-NMR experiments were run at 300MHz on a varian mercury vx-300 NMR spectrometer using TMS asinternal standard in deuterated dimethyl sulphoxide. The mass spectra were recorded on shimadzu GCMS-Q-P 1000EX mass spectrometer at 70ev.
Synthesis of 6-(3,4,5tribromo benzylideneamino)-5-(4-(3-(3,4,5tribromophenyl)acrylamido)-2-sulphatophenyl)diazenyl)-4-hydroxynaphthalene-2-sulphonic acid [c-1]:
Amixture of (0.01 mole) of acid red-37, (0.01mol) of 3, 4,5tribromobezaldehyde were mixed together in 200ml dry ethanol. The mixture was heated to reflux for 12hrs at which a brown residue was separated.
The reaction mixture was then cooled and the light brown residue was separated by filtration. The solid was recrystallized from ethyl alcohol to give faint brown crystals.

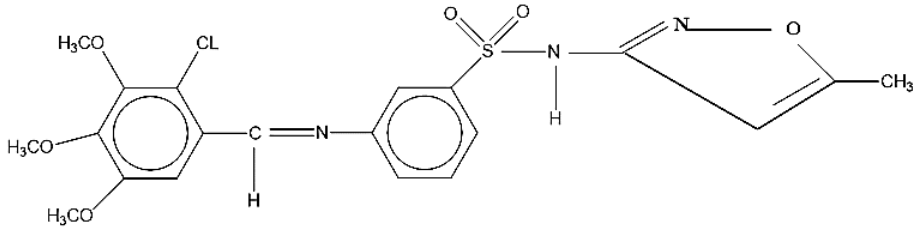


[C-1]

Fig 1: 6-(3,4,5tribromo benzylideneamino)-5-(4-(3-(3,4,5tribromophenyl)acrylamido)-2-sulphatophenyl)diazenyl)-4-hydroxynaphthalene-2-sulphonic acid [c-1]:

Synthesis 4 (2-chloro3,4,5trimethoxy-benzylidene) amino-N-(5-methyl-isoxazol-3-yl)-benzene sulfonamide(C-2)Amixtur of Sulfamethoxazole (0.01mole) and 2-chloro-3,4,5trimethoxybenzaldehyde (0.01mole) and in around bottom glass (pyrix) flask (250ml) in pure ethanol (100ml) are stirred for 30minutes.

The mixture was heated to reflux for 8 hours and kept overnightthe solid producte was separated by filtration. The solid was recrystallized from ethanol.



[C-2]

Fig 2: 4(2-chloro 3,4, 5 trimethoxy benzylidene) amino-N-(5-methyl-isoxazol-3-yl)benzene sulfonamide

Results and discussion

Spectroscopic studies of 6(3,4,5tribromo benzylideneamino)-5-(4-(3-(3,4,5 tribromophenyl)acrylamido)-2-sulphato phenyl)diazenyl)-4-hydroxynaphthalene-2 sulphonic acid [c-1].

The IR spectra of [c-1]table (1) exhibited a strong stretching frequency band for carbonyl group at 1671cm^{-1}and two absorption bands at 3312cm^{-1}due to (N-H)The ^{1}H-NMR spectrum of [C-1] in deuterated DMSO showed a singlet signal at 9.53 ppm due to proton of the NH group, singlet signal at 8.65 ppm suggested the attribution of the proton of the CH=N group, as well as multiplets in the rang 6.90-7.88 ppm due to the phenyl protons and the ^{1} HNMRspectrum exhibit doublet signal at 8.20 ppm due to (Ar-CH =CH,J=12.3Hz). The mass spectrum of [C-1] showed the molecular ion peak at m/z 1129.10(75%), the base peak at 65.17(100%).

Spectroscopic studies of 4(2-chloro 3,4, 5 trimethoxy benzylidene) amino-N-(5-methyl-isoxazol-3-yl)benzene sulfonamide {c-2}.

The infrared spectrum of [c-2]displayed tow absorption bands at 3246cm^{-1} due to עN-H. ^{1} HNMR spectrum of the (c-2) in deuterated DMSO-d_6.

Table 1 showed a singlet signal at 2.208 ppm suggested the attribution of the protons of the CH_3 group. The singlet signal at ע6.110ppm suggeste the attribution of the proton of CH of the isoxazole ring, the multiplet signal at 6.715-7.782 ppm suggested the attribution of the protons of two aromatic benzene rings, the singlet signal at 8.825ppm due to proton of the CH=N group, and the singlet signal at9.108 ppm due to NH group. The mass spectrum of [c-2] showed the molecular ion peak at m/z465.21(89%), the base peak at 77.33(100%).

Biological activity

Measurement of antimicrobial activity using diffusion disc method: A filter paper sterilized disc (diameter80mm) saturated with measured quantity of the sample is placed on plate containing solid bacterial medium (nutrient agar broth) or fungal medium (Dox's medium) which has been heavily seeded with the spore suspension of the tested organisms after incubation, the clear zone of inhibition surrounding the sample is taken as a measure of inhibitory power of the sample [11, 12, 13, 14].

The compounds [c-1] and [c-2] were screened for their antibacterial activity against one gram positive bacteria, one gram negative bacteria and fungi candida albicans, the results of antimicrobial studies are given in table 3

Table 1: Spectroscopic for {c-1} and {c-2}

Compound number	IR (KBr)CM^{-1}	^{1}HNMRδ(PPM)
C-1	ע c=o 1671 עN-H 3312	9.53(S,NH)8.65(S,CH=N)8.20(d, CH=CH) 6.90-7.88(m.Ar)
C-2	עN-H 3246	9.10(S-NH)8.82(S,CH=N) 6.71-7.78(m.Ar)6.11(S,CH:isoxazol ring2.20(S,CH_3)

Table 2: Physical data of the prepared compounds

Compound	MP.C/colour	Solvent yelid %	MF (Mwt)	Elemental analysisCalcd/found			
				C%	M%	N%	S%
c-1	254-256 Brown	Ethanol 78	$C_{32}N_4S_2O_8Br_6H_{17}$ 1129.615	34.03 33.97	1.51 1.09	4.95 4.28	5.67 5.23
c-2	162-164 yellow	Ethanol 90	$C_{20}H_{20}N_3SO_6CL$ 465.911	51.57 51.10	4.32 3.96	9.01 8.88	6.87 6.13

Table 3: Inhibition zones (mm) of compound [c-1] and [c-2]. The activity of 2,5mg/ml of sample Amoxicilline was used standard

Compound standard	Staphylococcus aureus	Escherichia coli	Candida albicans
c-1	14	26	13
c-2	18	20	17
Amoxicilline	23	21	15

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