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Synthesis, Characterization and Biological Evaluation of Novel Substitute 2,2'-(4,4'-((Phenylazanediyl)Bis(Methylene)) Bis (1*h*-1,2,3-Triazole-4,1-Diyl))Bis(N-(4-(3-Oxomorpholino) Phenyl)Acetamide) Via Click Chemistry Approach

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In current work we synthesized novel series of triazole derivatives of 2,2'-(4,4'- ((phenylazanediyl)bis(methylene)) bis (1*H*-1,2,3-triazole-4,1-diyl)) bis (N-(4-(3-oxomorpholino)phenyl)acetamide) via click chemistry approach in the presence DMF:H_2O:n-BuOH, and $CuSO_4.5H_2O$ of in good yield. The different studies indicate that newly synthesized novel compounds possess moderate to good biological activities. The title compounds have been synthesized with several structural variations biological evaluation of entirely synthesized compounds have been carried out in vitro for their antibacterial and antifungal efficacy against various bacterial and fungal strains. The structure of synthesized compounds characterized by their spectral (IR, ^{1}H NMR and Mass) data. All compounds purity confirmed by TLC.

Keywords : Acetamide, Click, Chemistry, Biological, Activities, Fungal

I. INTRODUCTION

To exploration for reactions which can be used to link two or more than two dissimilar functionalized molecular adducts with slightest effort and without produced side products or impurities have become popular during few decades[1]. Therefore our main As organic compounds ongoing to find out their place as simply tunable and functional materials. Such a reaction should be easily carried out with good to moderate yield and selectivity, which should be compatible with aqueous and other protic solvents and should lead to high quantitative conversion. Click chemistry is a bunch of such reactions that has evolved as an efficient tool for the synthesis of a library, which gained rapid acceptance in bio-technology, material science and polymer science, medicinal chemistry, and so on. Amongst entirely the click transformation, copper-mediated 1,3-dipolar Huisgen cycloaddition (HDC) between an alkyne and an azide is the jewel in the crown[2]. It possesses a remarkable functional group tolerance, researchers can effortlessly present numerous and varied functional groups. The idea of click transformation was leading given by Sharpless and coworkers at the Scripps Research Society[3]. Click transformation is a group of organic reactions, where "click" word refers for its efficiency, selectivity, and simplicity of reaction within a little time. Several reaction considers click transformation which involving simpler and

milder reaction condition. There were various reactions with dissimilar mechanisms that can be considered as click reactions, provided they follow a simple common reaction trajectory[4]. Sharpless and et al introduced the creative idea of click chemistry, which afford an efficient conjugation method in drug discovery[5], this idea and ideology is commonly observed, and its used and application found in diverse field of research and technology, which produced organic molecules for polymer chemistry[6], nano chemistry[7], bioconjugation chemistry[8], and sensing chemistry[9].

In the current work, we report the synthesis of this novel series triazole derivatives of 2,2'-(4,4'-((phenylazanediyl)bis(methylene)) bis (1H-1,2,3-triazole-4,1-diyl)) bis (N-(4-(3-oxomorpholino)phenyl)acetamide) via click chemistry approach and biological evaluation of all synthesized compounds have been carried out in vitro for their antibacterial and antifungal efficacy against various bacterial and fungal strains. The leading importance of the work is it will provide synthesized and more potent stable compounds for biological response as most of thiazol derivatives has significant biological activity. As we stated above, the importance and biological profile of this class of compounds so our continue efforts towards the synthesis of potential heterocyclic molecules.

II. EXPERIMENTAL

Anhydrous solvents and all reagents and solvents were obtained from, Spectrochem, Sigma-Aldrich, Lobachemie. And Merck, involving air or moisture-sensitive compounds were performed under a nitrogen atmosphere using oven-dried glassware and syringes to transfer solutions. Thin-layer chromatography (TLC) was conducted by using aluminium plates 20x20 cm coated by silica gel 60 F254 purchased from Merck. Melting points were determined by the melting point apparatus (uncorrected) using an open capillary method. Solvents evaporated by the help of a BUCHI rotary evaporator. IR spectra were recorded on FTIR-8400 spectrometer using DRS prob. which expressed in ν (cm-1). Shimadzu GCMS-QP-2010 model was used to achieve Mass spectra of the products. Nuclear magnetic resonance spectra ^{1}HNMR spectra were determined in $CDCl_3$/DMSO-d_6 (in 3/1 ratio) or DMSO-d_6 and were recorded on a Bruker AVANCE II 400 MHz. Chemical shifts (δ scale) were reported in ppm (parts per million) downfield from tetramethylsilane (TMS) used as an internal standard. Splitting patterns are designated as followings: s, singlet; d, doublet; t, triplet; q, quadruplet; m, multiplet; brs, broad singlet; dd, double doublet. Shimadzu GCMS-QP-2010 model was used to achieve Mass spectra of the products.

2.1 General synthesis of 2-chloro-N-(4-(3-oxomorpholino)phenyl)acetamide (INT-2):

To a solution of substituted amine (1 equi) in acetone, chloroacetyl chloride (1 equi) was added drop wise and the resulting mixture was stirred for 2-3 hr at room temperature. Reaction mixture was then dumped onto crushed ice and solid intermediate product was separated which was filtered and wash with water. Dry it and used in next step without further purification.

2.2 General synthesis of 2-azido-N-(4-(3-oxomorpholino)phenyl)acetamide (INT-3):

To a solution of INT-C (0.1 mmol) in DMF, sodium Azide(NaN_3) was added (0.3 mmol). The resulting mixture was stirred at RT for 24 hr. after completion of the reaction mixture; reaction mixture was poured on to crushed ice. Filter the separated product and dry it.

2.3 General synthesis of N,N-di(prop-2-yn-1-yl)aniline (INT-5):

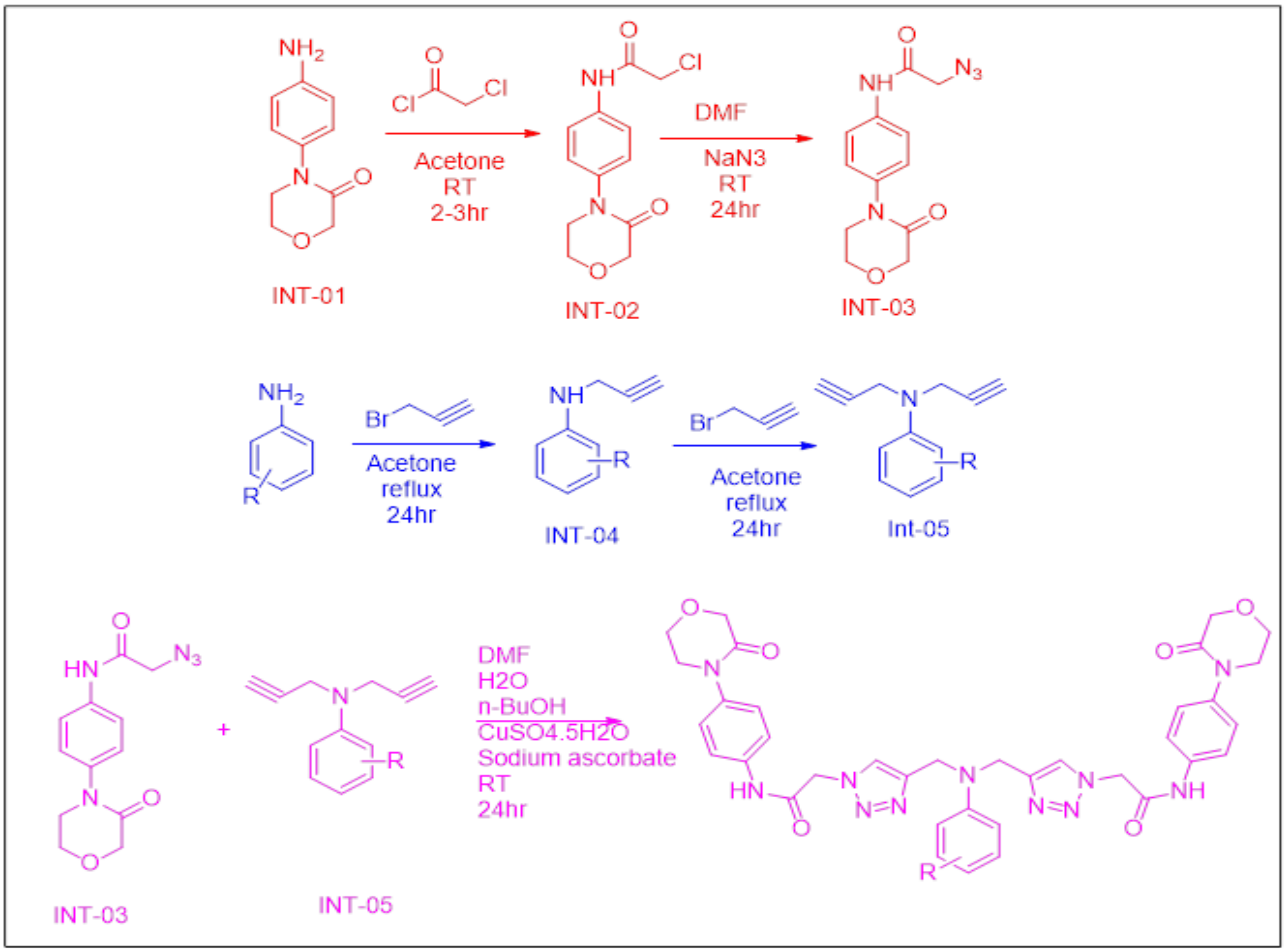
In RBF, Take different substituted aniline (50 mmol) in acetone (150ml) and added anhydrous K_2CO_3 (100 mmol) with stirring. After 5 min, propagyl bromide (Excess) was added slowly. After the addition

was over, reflux the reaction mixture for 3 hr. with continuous stirring. The reaction was monitored on TLC. After the completion of the reaction, the reaction mixture was poured into the crushed ice. Filter the separated product and wash with water to afford final compound.

2.4 General synthesis of substituted 2,2'-(4,4'-((phenylazanediyl)bis(methylene)) bis (1H-1,2,3-triazole-4,1-diyl)) bis (N-(4-(3-oxomorpholino)phenyl)acetamide):

In a RBF containing DMF:H_2O:n-butanol(1:1:1), INT-3 (1 eqi), and INT-5 (1eqi) was added at RT, followed by addition of catalytic amount of sodium ascorbate and copper sulphate pentahydrate. Stir the resulting solution for RT for 24 hr. after the completion of the reaction, mixture was poured onto the crushed ice and filter the separated product. Wash with dilute ammonia and filter the product again.

III. REACTION SCHEME



1. SPECTRAL DATA OF SYNTHESIZED COMPOUNDS:

2,2'-(4,4'-(((4-bromophenyl)azanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-11)

Yellow Solid, Rf value 0.42 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3258,3119,2946,2858,1679,1549,1377,1256,1049,896,754,709. cm^{-1} ^1H NMR (DMSO) in δ ppm: 6.90 to 7.97 (Complex, 8H), 10.52 (Singlet, 1H), 5.30 (Triplet, 2H), 4.69 (Triplet, 2H), 4.17 (Singlet,3H), 3.66 (Singlet, 4H) ^{13}C NMR 165.94, 164.30, 146.85, 143.97, 137.15, 136.51, 131.39, 125.94, 119.47,

114.82, 107.58, 67.71, 63.47, 52.10, 48.97, 45.65. Mass (m/z): 798 (M^+), Ana. Calculated for Molecular formula $C_{36}H_{36}BrN_{11}O_6$ is C; 54.14%, H; 4.14%, N; 19.29% Found C; 54.16%, H; 4.52%, N; 19.26%.

2,2'-(4,4'-(((4-chlorophenyl)azanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-12)

White Solid, Rf value 0.48 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3256,3155,2941,2899,1670,1547,1366,1289,1094,900,853,754,698 cm^{-1} ^1H NMR (DMSO) in δ ppm: 6.90 to 7.97 (Complex, 8H), 10.52 (Singlet, 1H), 5.30 (Triplet, 2H) 4.69 (Triplet, 2H), 4.17 (Singlet,3H), 3.66 (Singlet, 4H) ^{13}C NMR 165.90, 164.30, 147.85, 142.97, 138.25, 136.51, 131.39, 124.94, 118.47, 113.82, 107.58, 67.71, 63.47, 51.10, 48.97, 44.65. Mass (m/z): 754 (M^+), Ana. Calculated for Molecular formula $C_{36}H_{36}ClN_{11}O_6$ is C; 54.14%, H; 4.14%, N; 19.29% Found C; 54.16%, H; 4.52%, N; 19.26%

2,2'-(4,4'-(((4-nitrophenyl)azanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-13)

White Solid, Rf value 0.46 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3257,3156,2942,2899,1670,1547,1366,1288,1093,900,853,754,698 cm^{-1} ^1H NMR (DMSO) in δ ppm: 6.92 to 7.95 (Complex, 8H), 10.50 (Singlet, 1H), 5.30 (Triplet, 2H) 4.68 (Triplet, 2H), 4.10 (Singlet,3H), 3.64 (Singlet, 4H) ^{13}C NMR 164.94, 163.30, 145.82, 142.91, 137.15, 134.51, 130.39, 124.92, 118.37, 113.81, 106.58, 65.71, 63.47, 51.11, 47.77, 45.52. Mass (m/z): 764 (M^+), Ana. Calculated for Molecular formula $C_{36}H_{36}N_{12}O_8$ is C; 56.54%, H; 4.74%, N; 21.98% Found C; 56.52%, H; 4.72%, N; 21.92%

2,2'-(4,4'-((phenylazanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-14)

White Solid, Rf value 0.42 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3254,3155,2941,2899,1671,1547,1365,1289,1092,900,852,754,698 cm^{-1} ^1H NMR (DMSO) in δ ppm: 6.92 to 7.90 (Complex, 9H), 10.58 (Singlet, 1H), 5.32 (Triplet, 2H) 4.67 (Triplet, 2H), 4.11 (Singlet,3H), 3.63 (Singlet, 4H) ^{13}C NMR 164.94, 163.35, 147.81, 142.74, 136.15, 134.51, 130.14, 125.11, 117.40, 116.81, 105.58, 65.71, 63.47, 52.10, 47.97, 44.65. Mass (m/z): 719 (M^+),
Ana. Calculated for Molecular formula $C_{36}H_{37}N_{11}O_6$ is C; 60.07%, H; 5.18%, N; 21.41% Found C; 60.00%, H; 5.15%, N; 21.40%

2,2'-(4,4'-((p-tolylazanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-15)

White Solid, Rf value 0.42 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3254,3155,2941,2899,1671,1547,1365,1289,1092,900,852,754,698 cm^{-1} ^1H NMR (DMSO) in δ ppm: 6.92 to 7.90 (Complex, 8H), 10.58 (Singlet, 1H), 5.32 (Triplet, 2H) 4.67 (Triplet, 2H), 4.11 (Singlet,3H), 3.63 (Singlet, 4H), 1.28 (Singlet, 3H) ^{13}C NMR 164.94, 163.30, 146.85, 142.87, 137.85, 135.55, 130.39, 123.94, 117.47, 112.84, 108.58, 65.71, 61.47, 50.10, 47.97, 45.65. Mass (m/z): 733 (M^+), Ana. Calculated for Molecular formula $C_{37}H_{39}N_{11}O_6$ is C; 60.56%, H; 5.33%, N; 21.00% Found C; 60.50%, H; 5.31%, N; 21.02%

2,2'-(4,4'-(((4-methoxyphenyl)azanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-16)

White Solid, Rf value 0.44 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3252,3155,2941,2892,1672,1547,1366,1289,1094,900,853,754,698 cm^{-1} ^{1}H NMR (DMSO) in δ ppm: 6.90 to 7.90 (Complex, 8H), 10.59 (Singlet, 1H), 5.32 (Triplet, 2H) 4.67 (Triplet, 2H), 4.22 (Singlet,3H), 3.64 (Singlet, 4H), 2.55 (Singlet, 3H) ^{13}C NMR 167.94, 163.30, 148.77, 144.99, 138.15, 137.51, 133.37, 124.94, 118.47, 114.82, 104.58, 66.71, 63.47, 54.10, 48.97, 45.65. Mass (m/z): 749 (M^{+}), Ana. Calculated for Molecular formula $C_{37}H_{39}N_{11}O_7$ is C; 59.27%, H; 5.24%, N; 20.55% Found C; 59.20%, H; 5.20%, N; 20.54%

4-(bis((1-(2-oxo-2-((4-(3-oxomorpholino)phenyl)amino)ethyl)-1H-1,2,3-triazol-4-yl)methyl)amino)benzoic acid (HP-17)

White Solid, Rf value 0.42 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3256,3155,2942,2899,1670,1546,1366,1288,1093,900,853,754,698 cm^{-1} ^{1}H NMR (DMSO) in δ ppm: 6.88 to 7.90 (Complex, 8H), 10.52 (Singlet, 1H), 5.31 (Triplet, 2H) 4.65 (Triplet, 2H), 4.12 (Singlet,3H), 3.66 (Singlet, 4H), 11.02 (Singlet, 1H) ^{13}C NMR 166.94, 163.30, 146.84, 143.97, 137.20, 136.52, 131.34, 121.94, 115.47, 111.82, 105.58, 67.71, 64.47, 58.10, 49.97, 45.65. Mass (m/z): 763 (M^{+}), Ana. Calculated for Molecular formula $C_{37}H_{37}N_{11}O_8$ is C; 58.19%, H; 4.88%, N; 20.17% Found C; 58.15%, H; 4.82%, N; 20.15%

Methyl 4-(bis((1-(2-oxo-2-((4-(3-oxomorpholino)phenyl)amino)ethyl)-1H-1,2,3-triazol-4-yl)methyl)amino)benzoate (HP-18)

White Solid, Rf value 0.48 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3256,3154,2941,2898,1671,1547,1366,1288,1095,900,853,754,698 cm^{-1} ^{1}H NMR (DMSO) in δ ppm: 6.87 to 7.90 (Complex, 8H), 10.50 (Singlet, 1H), 5.31 (Triplet, 2H) 4.64 (Triplet, 2H), 4.11 (Singlet,3H), 3.66 (Singlet, 4H), 2.01 (Singlet, 3H) ^{13}C NMR 165.94, 161.30, 147.85, 142.97, 136.15, 135.51, 130.39, 124.94, 118.47, 113.82, 106.58, 67.71, 62.47, 52.10, 48.97, 45.61. Mass (m/z): 777 (M^{+}), Ana. Calculated for Molecular formula $C_{38}H_{39}N_{11}O_8$ is C; 58.68%, H; 5.50%, N; 19.81% Found C; 58.66%, H; 5.55%, N; 19.80%

2,2'-(4,4'-(((4-hydroxyphenyl)azanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-19)

White Solid, Rf value 0.48 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3256,3155,2942,2899,1671,1547,1365,1289,1095,900,853,754,698 cm^{-1} ^{1}H NMR (DMSO) in δ ppm: 6.86 to 7.90 (Complex, 8H), 10.51 (Singlet, 1H), 5.31 (Triplet, 2H) 4.64 (Triplet, 2H), 4.12 (Singlet,3H), 3.68 (Singlet, 4H), 2.05 (Singlet, 1H) ^{13}C NMR 165.94, 162.30, 144.85, 141.97, 138.14, 135.51, 132.39, 124.94, 117.47, 112.82, 107.50, 64.71, 62.47, 51.10, 40.97, 35.65. Mass (m/z): 735 (M^{+}), Ana. Calculated for Molecular formula $C_{36}H_{37}N_{11}O_7$ is C; 58.77%, H; 5.07%, N; 20.94% Found C; 58.70%, H; 5.02%, N; 20.91%

2,2'-(4,4'-(((4-acetamidophenyl)azanediyl)bis(methylene))bis(1H-1,2,3-triazole-4,1 diyl))bis(N-(4-(3-oxomorpholino)phenyl)acetamide) (HP-20)

White Solid, Rf value 0.48 (Ethyl acetate 8: Hexane 2) IR (KBr pallet) in cm^{-1} : 3252,3155,2941,2899,1620,1547,1326,1289,1093,900,853,754,697 cm^{-1} ^{1}H NMR (DMSO) in δ ppm: 6.86 to 7.90 (Complex, 8H), 10.51 (Singlet, 2H), 5.31 (Triplet, 2H) 4.64 (Triplet, 2H), 4.12 (Singlet,3H), 3.68 (Singlet, 4H), 2.05 (Singlet, 3H) ^{13}C NMR 168.94, 163.30, 145.81, 142.97, 138.15, 135.55, 130.38, 124.91, 119.47, 114.82, 108.50, 67.71, 62.40, 52.10, 48.87, 45.44.Mass (m/z): 776 (M^{+}), Ana. Calculated for Molecular formula $C_{38}H_{40}N_{12}O_7$ is C; 58.75%, H; 5.19%, N; 21.64% Found C; 58.74%, H; 5.18%, N; 21.62%

Table-1 Physical constant of synthesized library

Code	Molecular formula	Substitution	Molecular Weight	M.P. ^{0}C	Percentage of Yield
HP-11	$C_{36}H_{36}BrN_{11}O_6$	-Br	798	152-154	66
HP-12	$C_{36}H_{36}ClN_{11}O_6$	-Cl	754	178-180	68
HP-13	$C_{36}H_{36}N_{12}O_8$	$-NO_2$	764	146-148	56
HP-14	$C_{36}H_{37}N_{11}O_6$	-H	719	164-166	58
HP-15	$C_{37}H_{39}N_{11}O_6$	-Me	733	168-170	62
HP-16	$C_{37}H_{39}N_{11}O_7$	-OMe	749	154-156	54
HP-17	$C_{37}H_{37}N_{11}O_8$	-COOH	763	184-186	56
HP-18	$C_{38}H_{39}N_{11}O_8$	-COOR	777	146-148	72
HP-19	$C_{36}H_{37}N_{11}O_7$	-OH	735	182-184	56
HP-20	$C_{38}H_{40}N_{12}O_7$	-NHCOMe	776	186-188	60

IV. BIOLOGICAL EVALUATION

4.1 Anti-bacterial & anti-fungal activity:

Antimicrobial activity is the procedure of killing or inhibiting the pathogenic microbes producing disease.[10] An antimicrobial is an agent that kills microorganisms or ends their growth[11]. Antimicrobial can be anti-bacterial, anti-fungal or antiviral[12]. Agents that kill microbes are called microbicidal, while those that inhibit their growth are called microbistatic[13]. Entirely agents have dissimilar modes of action by which they act against infection. The usage of antimicrobial medicines to treat infection is known as antimicrobial chemotherapy.

In our existing study antibacterial and antifungal activity was tested by standard agar cup method[14]. Entirely the synthesized compound were tested for their in vitro antimicrobial activity against Gram *+ve (Bacillus megaterium, Micrococcus spp.*), Gram *–ve (E.coli, S. typi) and fungal spps. (Ganoderma spp., A. niger, A. flavus and Penicillium spp.*), taking streptomycin, ciprofloxacin, and nystatin as standard drugs. Suspension of 24 to 48 hrs. grown fresh bacterial and fungal culture was prepared in N-broth and potato dextrose broth respectively. All the bacterial and fungal suspension were similarly spreaded on to the sterile Muller Hinton and PDA plates respectively with the help of sterile swabs. Wells were made in the plates (1 cm) with the help of sterile cork borer. The standard antibiotics were dissolved in sterile distilled water to make the final concentration of 200µg/ml. The synthesized compounds to be tested were dissolved in DMSO up to the final concentration of 1 mg/ml and 0.1 ml of it was loaded in the well. The plate was incubated at 4˚C for 20 minutes for proper diffusion of a compound in agar and then the plates were incubated in the upward position for 24 hrs at 37˚C for bacterial culture and 48 hrs. at 25˚C for fungal cultures. The control activity against DMSO was also performed. After incubation zone of inhibition was observed and measured.

Table 2 : Biological results of synthesized compounds

Code	**Antibacterial activity**				**Antifungal activity**			
	Antibacterial activity (zone in cm), concentration: 1 mg/ml.				**Antifungal activity (zone in cm), concentration: 1mg/ml**			
	Gram *+ve* bacteria		**Gram *–ve* bacteria**					
	B. megaterium	***Micrococcus spp.***	***S. typhi.***	***E. coli.***	***Penicillium spp.***	***Ganoderma spp.***	***A. niger***	***A. flavus***
HP-11	-	1.6	1.2	-	1.3	-	1.4	0.8
HP-12	1.0	1.0	1.1	-	1.2	2.2	1.5	1.3
HP-13	-	-	0.5	1.0	2.1	2.2	1.8	1.4
HP-14	**2.6**	**2.3**	**1.1**	**2.8**	**2.4**	**3.2**	**1.9**	**1.8**
HP-15	1.1	0.7	-	1.6	1.8	0.1	0.3	1.1
HP-16	**2.5**	**2.3**	**1.3**	**3.0**	**2.4**	**3.2**	**1.9**	**2.5**
HP-17	2.0	1.1	1.4	2.2	2.4	2.0	0.8	1.0
HP-18	1.0	2.1	1.7	-	-	1.4	2	3.2
HP-19	0.4	1.5	1.1	-	0.8	0.6	1.4	-
HP-20	1.1	-	1.1	1.0	2.0	2.0	-	1.2
Streptomycin (200µg/ml)	3.0	2	2	3.2	-	-	-	-
Ciprofloxacin (200µg/ml)	3.8	4	4	3	-	-	-	-

Nystatin (200µg/ml)	-	-	-	-	3.2	4	3.5	3.8

V. RESULTS AND DISCUSSION

5.1 For Synthesis and structural characterization:

We have prepared a series of novel 2,2'-(4,4'- ((phenylazanediyl)bis(methylene)) bis (1H-1,2,3-triazole-4,1-diyl)) bis (N-(4-(3-oxomorpholino)phenyl)acetamide) via click chemistry approach which is showed in **Figure-1**.

Initial analogue 2,2'-(4,4'-((phenylazanediyl)bis(methylene)) bis (1H-1,2,3-triazole-4,1-diyl)) bis (N-(4-(3-oxomorpholino)phenyl)acetamide) was synthesized from N,N-di(prop-2-yn-1-yl)aniline and 2-azido-N-(4-(3-oxomorpholino)phenyl)acetamide via click chemistry approach in the presence DMF:H_2O:n-BuOH, and $CuSO_4.5H_2O$ of in good yield. On the basis of IR spectra amide C=O stretching frequency observed which is show peak at 1670 cm^- which is indicate presence of amide functional group. On ther hand different types of carbon skeleton with types of hydrogen conformed by ^1H NMR spectra. Therefor structure of all synthesized compound confirmed by IR, NMR and Mass spectroscopy.

5.2 For vitro biological screening:

Entirely novel synthesized entities were investigated for them in-vitro antibacterial activity. The BioAssay result demonstrated that compounds (**HP-11 to HP-20**) succeeded to indicate remarkable activity against mentioned microorganism when compare to standard drugs.

The result includes that **HP-14 & HP-16** both compound displaying notable activity which is showed in **Table-2**. The reason of this compounds are active because of presence of groups increasing activity and therefor their activity increasing by understand the structure of two active compounds. In **HP-14 & HP-16** both contain methoxy group and phenyl group respectively.

VI. CONCLUSION

We have demonstrated the synthesis of a novel class of substitute 2,2'-(4,4'-((phenylazanediyl)bis(methylene)) bis (1H-1,2,3-triazole-4,1-diyl)) bis (N-(4-(3-oxomorpholino)phenyl)acetamide). The click chemistry reaction is performed successfully. **Total ten** compounds were synthesized and well-characterized by various spectroscopic techniques. We have synthesized and confirmed all the structure based on the spectroscopic technique. The result includes that **HP-14 & HP-16** exhibited potent antibacterial activity against B. megaterium, S. typi, Micrococcus spp. and E.coli Therefore further investigation can be done, MIC can be identified and such compounds can further be tested and can be used as a potent drug in coming time.

Overall the reaction was carried out clean and the products were obtained in excellent yields without any further development of any side products or purification needed. Total ten compounds we have synthesized and confirmed entirely the structure on the basis of the spectroscopic technique. The present effort is significant for the synthesis of a wide variety of novel entities.

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