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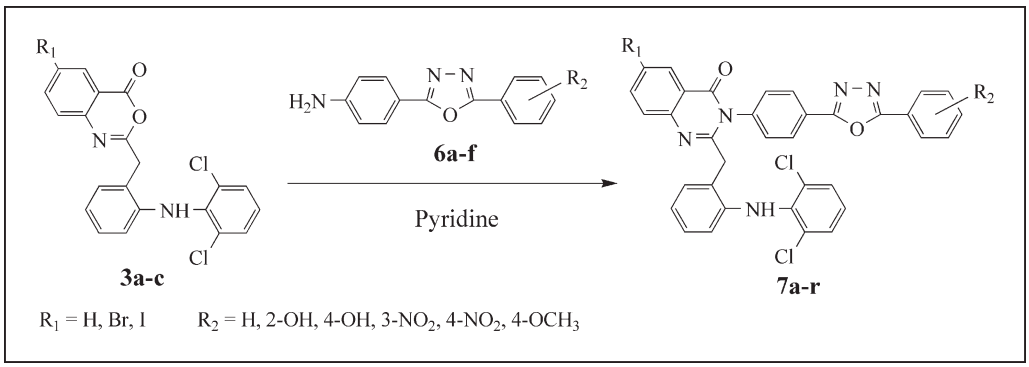

A series of 1,3,4-oxadiazolyl-quinazolin-4(3*H*)ones have been synthesized using known methods. All the compounds have been established on basis of elemental analysis, IR and NMR spectral data. The *in vitro* antimicrobial screening of the synthesized compounds were carried out against two gram-positive bacteria (*S. aureus*, *S. pyogenes*), two gram-negative bacteria (*E. coli*, *P. aeruginosa*), and three fungal species (*C. albicans*, *A. niger*, *A. clavatus*) using the broth microdilution method. The compounds **7d**, **7g**, **7l**, **7o**, **7p**, and **7r** possessed pronounced antibacterial activity whereas compound **7p** exhibited promising antifungal activity.

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INTRODUCTION

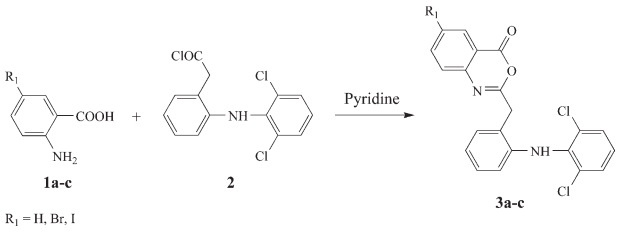
Heterocyclic skeleton contained nitrogen atom is the basic of many pharmaceuticals, to be an active compound. 1,3,4-Oxadiazoles are five member nitrogen atom contained heterocycles, represent broad spectrum of biological activity in both agrochemicals and pharmaceuticals such as insecticidal [1], herbicidal [2], antibacterial [3], antifungal [4], analgesic [5], anti-inflammatory [6], antimalarial [7], antiviral [8], anti-HBV [9], antianexiety [10], anticancer [11], anti-HIV [12], antitubercular [13], and anticonvulsant [14]. Quinazolin-4(3*H*)one derivatives are six member fused heterocycles, possess potent pharmacological activities like antibacterial [15], antifungal [16], analgesic [17], anti-inflammatory [18], anthelminthic [19], antitumor [20], anticonvulsant [21], antihistaminic [22], anti HIV [23], antiproliferative [24], antitubercular [25], antiviral [26], CNS depressant [27], cytotoxicity [28], diuretic [29], and hypolipidemic [30].

The 1,3,4-oxadiazole and quinazolin-4(3*H*)one containing various heterocycle exhibited good pharmacological activities. The aim of this work was to attach 1,3,4-oxadiazole to quinazolin-4(3*H*)one in order to find new biologically active molecule. Thus, synthesis of novel 1,3,4-oxadiazolyl-quinazolin-4(3*H*)one derivatives has been achieved.

RESULT AND DISCUSSION

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3,1-benzoxazin-4(*H*)ones **3a-c** were synthesized from substituted anthranilic acids and acid chloride according to the reported process (Scheme 1) [31,32]. The required 2-[(2,6-dichlorophenyl)amino]phenyl acetyl chloride **2**, which is moisture sensitive and easily hydrolysable compound, was synthesized by reported method [33] and used directly in the next step. The cyclization reaction of acid chloride and substituted anthranilic acid in highly basic medium of pyridine at 0–5°C afforded 2-[2-(2,6-dichlorophenyl)-amino]benzyl-3,1-benzoxazin-4(*H*)ones **3a-c**. The structural determinations of these compounds have been

Scheme 1



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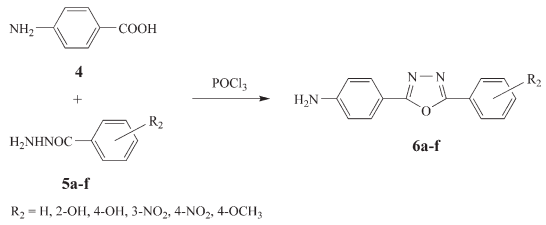
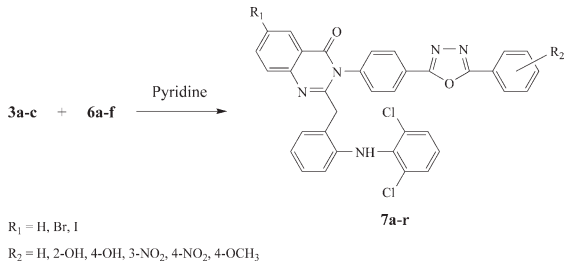
Scheme 2



Scheme 3



carried out using IR and NMR spectral data. IR spectra showed strong C=O and C=N stretching at around 1740 and 1620 cm^{-1} while ^{13}C-NMR spectra showed C=O and C=N signal at around δ 159 ppm and δ 165 ppm respectively. 2-(4-Aminophenyl)-5-substitutedphenyl-1,3,4-oxadiazoles **6a-f** were synthesized according to reported method (Scheme 2) [34]. All amino substituted 1,3,4-oxadiazole derivatives showed satisfactory IR and NMR spectral results. Finally the condensation reaction of 4-benzoxazinones **3a-c** with amino substituted 1,3,4-oxadiazoles **6a-f** in pyridine afforded the desired compounds **7a-r** (Scheme 3) [35]. IR spectra showed strong C=O and C=N stretching of quinazolin-4(3*H*)ones at around 1680 and 1610 cm^{-1}, respectively. ^{13}C-NMR spectra showed C=O and C=N signal of quinazolin-4(3*H*)ones near δ 161 ppm and δ 163 ppm respectively. All the synthesized compounds showed satisfactory ^{1}H-NMR spectral results and for all compounds satisfactory elemental analyses were obtained.

The *in vitro* antibacterial activities of the synthesized compounds are shown in Table 1. The antibacterial activities are expressed in terms of Minimal Bactericidal Concentrations (MBCs μg/mL). The synthesized compounds were screened against two gram positive bacteria (*S. aureus* MTCC 96, *S. pyogenes* MTCC 443) and two

Table 1

Antibacterial activity of compounds **6a-f** and **7a-r**.

			Minimal bactericidal concentration (MBC) (μg/mL)			
			Gram positive bacteria		Gram negative bacteria	
Compound	R_1	R_2	*S. aureus* MTCC-96	*S. pyogenes* MTCC-443	*E. coli* MTCC-442	*P. aeruginosa* MTCC-441
6a	–	H	250	250	250	200
6b	–	2-OH	500	500	500	250
6c	–	4-OH	250	500	500	500
6d	–	3-NO_2	250	250	250	500
6e	–	4-NO_2	500	500	500	1000
6f	–	4-OCH_3	250	250	500	500
7a	H	H	500	1000	250	200
7b	H	2-OH	500	250	150	100
7c	H	4-OH	500	1000	250	200
7d	H	3-NO_2	200	250	250	250
7e	H	4-NO_2	250	250	500	500
7f	H	4-OCH_3	500	250	200	100
7g	Br	H	200	250	100	250
7h	Br	2-OH	500	500	150	200
7i	Br	4-OH	500	500	250	250
7j	Br	3-NO_2	500	500	250	500
7k	Br	4-NO_2	500	500	500	1000
7l	Br	4-OCH_3	200	250	100	250
7m	I	H	500	500	250	200
7n	I	2-OH	250	500	100	150
7o	I	4-OH	250	250	125	150
7p	I	3-NO_2	200	200	150	250
7q	I	4-NO_2	150	250	500	200
7r	I	4-OCH_3	200	150	100	250
Ampicillin	–	–	250	100	100	100

Table 2

Antifungal activity of compounds **6a-f** and **7a-r**.

			Minimal Fungicidal Concentration (MFC) (μg/mL)		
			Fungal species		
Compound	R_1	R_2	*C. albicans* MTCC-227	*A. niger* MTCC-282	*A. clavatus* MTCC-323
6a	–	H	500	> 1000	>1000
6b	–	2-OH	250	500	>1000
6c	–	4-OH	500	1000	>1000
6d	–	3-NO_2	250	>1000	>1000
6e	–	4-NO_2	500	>1000	>1000
6f	–	4-OCH_3	>1000	>1000	>1000
7a	H	H	500	500	500
7b	H	2-OH	500	500	200
7c	H	4-OH	>1000	500	250
7d	H	3-NO_2	250	500	500
7e	H	4-NO_2	200	>1000	>1000
7f	H	4-OCH_3	500	1000	>1000
7g	Br	H	200	>1000	>1000
7h	Br	2-OH	500	500	500
7i	Br	4-OH	500	500	1000
7j	Br	3-NO_2	200	500	500
7k	Br	4-NO_2	250	500	500
7l	Br	4-OCH_3	200	>1000	>1000
7m	I	H	250	>1000	>1000
7n	I	2-OH	1000	>1000	>1000
7o	I	4-OH	500	500	1000
7p	I	3-NO_2	200	250	250
7q	I	4-NO_2	250	500	500
7r	I	4-OCH_3	1000	1000	>1000
Greseofulvin	–	–	500	100	100

gram negative bacteria (*E. coli* MTCC 442, *P. aeruginosa* MTCC 441). Ampicillin was used as a standard drug. The results show that some of the amino substituted 1,3,4-oxadiazoles possessed good activity against *S. aureus* while moderate activity against *S. pyogenes*, *E. coli* and *P. aeruginosa* compared to ampicillin but its 4-quinazolinonyl derivative displayed very good activity in some cases. Compounds **7d**, **7e**, **7g**, **7l**, **7n**, **7o**, **7p**, **7q**, and **7r** showed very good activity (150–250 μg/mL) against *S. aureus*. Compounds **7b**, **7d**, **7e**, **7f**, **7g**, **7l**, **7o**, **7p**, **7q**, and **7r** exhibited moderate activity (150–250 μg/mL) against *S. pyogenes*. Compounds **7g**, **7l**, **7n**, **7o,** and **7r** possessed good activity (100–125 μg/mL) while **7a**, **7b**, **7c**, **7d**, **7f**, **7h**, **7i**, **7j**, **7m**, and **7p** showed moderate activity (150–250 μg/mL) against *E. coli*. Compounds **7b** and **7f** exhibited good activity (100 μg/mL) while **7a**, **7c**, **7d**, **7g**, **7h**, **7i**, **7l**, **7m**, **7n**, **7o**, **7p**, **7q**, and **7r** possessed moderate activity (150–250 μg/mL) against *P. aeruginosa*.

In vitro antifungal activity results are shown in Table 2. Antifungal activities are shown in minimal fungicidal concentrations (MFCs μg/mL). The synthesized compounds were screened against three fungal species *C. albicans*, *A. niger* and *A. clavatus*. Greseofulvin was used as a standard drug. Results show that amino substituted 1,3,4-oxadiazoles possessed good activity while its 4-quinazolinonyl derivative showed increased activity against *C. albicans*. Compounds **7d**, **7e**, **7g**, **7j**, **7k**, **7l**, **7m**, **7p**, and **7q** showed pronounced activity (200–250 μg/mL) against *C. albicans*. Amino substituted 1,3,4-oxadiazoles possessed poor activity against *A. niger* and *A. clavatus* while some of its 4-quinazolinonyl derivative exhibited moderate activity. Compound **7p** was found active against *A. niger* (MFC = 250 μg/mL) whereas compounds **7b**, **7c**, and **7p** were found active against *A. clavatus* (MFC = 200–250 μg/mL) among the whole series.

CONCLUSION

The *in vitro* antimicrobial screening results were found satisfactory. Amino substituted 1,3,4-oxadiazoles possessed good antibacterial activity but its 4-quinazolinonyl derivative showed increased activity in most of cases. All the compounds displayed very good antifungal activity

against *C. albicans* while poor activity was observed against *A. niger* and *A. clavatus*, except **7p**, **7b**, and **7c** (**7p** was found active against *A. niger* and *A. clavatus* while **7b** and **7c** were found active against *A. clavatus*).

EXPERIMENTAL

All chemical were of analytical grade and used directly. Melting points were determined in PMP-DM scientific melting point apparatus and are uncorrected. The purity of compound was confirmed by TLC using Merck silica gel 60 F254. Infrared spectra were recorded on a Perkin-Elmer RX 1 FTIR spectrophotometer, using potassium bromide (KBr) pellets, the frequencies are expressed in cm^{-1}. The nuclear magnetic resonance spectra were recorded with a Bruker Avance II 400 NMR spectrometer, using tetramethylsilane (TMS) as the internal reference, with dimethylsulphoxide (DMSO-d_6) as solvent. The chemical shifts are reported in parts per million (δ ppm). Elemental analyses were performed on a Heraeus Carlo Erba 1180 CHN analyzer.

General procedure for the synthesis of 2-[2-(2,6-dichlorophenyl)amino]benzyl-3,1-benzoxazin-4(*H*)ones (3a-c). The mixture of 3.05 g (0.01 mole) of acid chloride (2) and 1.37 g (0.01 mole) of anthranilic acid (1a) in 20 mL of dry pyridine were stirred at 0–5 °C for 1 h, further stirred for 1 h at room temperature. Progress of reaction was check by TLC using toluene:ethylacetate (80:20) as mobile phase. After completion of reaction, a pasty mass obtained, was washed thoroughly with sodium bicarbonate (5% w/v) to remove unreacted acid. A solid separated was filtered, dried and recrystallized from methanol. Other benzoxazinone derivatives **3b, c** were synthesized by the same method.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3,1-benzoxazin-4(H)one (3a). This compound was obtained as reddish solid, yield 53%, mp 183–186°C; IR (KBr): NH 3449, CH_2 2925, 2851, CO 1742, CN 1620, CN 1316, CO 1151, CCl 745 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.52 (s, 2H, CH_2), 6.39 (d, 1H, 14-H, J = 7.96 Hz), 6.88 (t, 1H, 16-H, J = 7.4 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.54 Hz), 7.42 (d, 2H, 21- and 23-H, J = 8.08 Hz), 7.51 (d, 1H, 8-H, J = 8.12 Hz), 7.84 (t, 1H, 7-H, J = 7.8 Hz), 8.06 (t, 1H, 6-H, J = 7.64 Hz), 8.12 (d, 1H, 5-H, J = 7.72 Hz), 9.12 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.47 (CH_2), 116.27 (16-C), 116.54 (10-C), 120.54 (14-C), 122.35 (8-C), 124.15 (22-C), 126.61 (15-C), 127.12 (12-C), 127.32 (21- and 23-C), 127.54 (6-C), 129.34 (20- and 24-C), 131.23 (17-C), 131.52 (5-C), 135.43 (7-C), 137.23 (19-C), 141.76 (13-C), 149.53 (9-C), 159.36 (4-C), 164.51 ppm (2-C). Anal. Calcd. for $C_{21}H_{14}Cl_2N_2O_2$ (397.25): C, 63.49; H, 3.55; N, 7.05. Found: C, 63.45; H, 3.56; N, 7.03.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-6-bromo-3,1-benzoxazin-4(H)one (3b). This compound was obtained as orange solid, yield 55%, mp 194–198°C; IR (KBr): NH 3446, CH_2 2926, 2850, CO 1740, CN 1618, CO 1153, CCl 743, CBr 565 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 6.40 (d, 1H, 14-H, J = 8 Hz), 6.88 (t, 1H, 16-H, J = 7.44 Hz), 7.03–7.08 (m, 2H, 15- and 22-H), 7.22 (d, 1H, 17-H, J = 7.58 Hz), 7.41 (d, 2H, 21- and 23-H, J = 8.16 Hz), 7.65 (d, 1H, 8-H, J = 8.32 Hz), 8.12 (d, 1H, 7-H, J = 8.32 Hz), 8.16 (s, 1H, 5-H), 9.10 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.43 (CH_2), 116.31 (16-C), 118.64 (10-C), 120.62 (14-C), 121.67 (6-C), 124.31 (22-C), 124.57 (8-C), 126.54 (15-C), 127.17 (12-C), 127.43 (21- and 23-C), 129.41 (20- and 24-C), 131.12 (17-C), 135.22 (5-C), 137.29 (19-C), 138.23 (7-C), 141.78 (13-C), 148.73 (9-C), 159.23 (4-C), 164.33 ppm (2-C). *Anal*. Calcd. for $C_{21}H_{13}BrCl_2N_2O_2$ (476.15): C, 52.97; H, 2.75; N, 5.88. Found: C, 52.94; H, 2.74; N, 5.90.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-6-iodo-3,1-benzoxazin-4(H)one (3c). This compound was obtained as brown solid, yield 58%, mp 189–193°C; IR (KBr): NH 3450, CH_2 2923, 2848, CO 1745, CN 1617, CO 1148, CCl 747, CI 620 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 6.41 (d, 1H, 14-H, J = 7.92 Hz), 6.89 (t, 1H, 16-H, J = 7.36 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.22 (d, 1H, 17-H, J = 7.54 Hz), 7.25 (d, 1H, 8-H, J = 8.28 Hz), 7.42 (d, 2H, 21- and 23-H, J = 8.12 Hz), 8.05 (d, 1H, 7-H, J = 8.28 Hz), 8.48 (s, 1H, 5-H), 9.10 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.53 (CH_2), 93.14 (6-C), 116.25 (16-C), 118.23 (10-C), 120.57 (14-C), 123.74 (8-C), 124.19 (22-C), 126.58 (15-C), 127.05 (12-C), 127.33 (21- and 23-C), 129.39 (20- and 24-C), 131.14 (17-C), 137.42 (19-C), 138.87 (5-C), 141.81 (13-C), 144.27 (7-C), 148.62 (9-C), 159.53 (4-C), 164.47 ppm (2-C). *Anal*. Calcd. for $C_{21}H_{13}Cl_2IN_2O_2$ (523.15): C, 48.21; H, 2.50; N, 5.35. Found: C, 48.25; H, 2.49; N, 5.33.

General procedure for the synthesis of 2-(4-aminophenyl)-5-substitutedphenyl-1,3,4-oxadiazoles (6a-f). A mixture of 0.69 g (0.005 mole) of 4-amino benzoic acid and substituted benzoic acid hydrazides (0.005 mole) in 5 mL of phosphorus oxychloride was refluxed on water bath for 7–10 h. The progress of the reaction was monitored by TLC using toluene:ethylacetate:methanol (70:20:10) as mobile phase. After the completion of reaction, it was cooled and poured onto crushed ice with continuous stirring. The solid mass separated was neutralized with sodium bicarbonate solution (10% w/v). The resulting solid thus obtained was collected by filtration, washed well with cold water, dried and crystallized from absolute ethanol.

2-(4-Aminophenyl)-5-phenyl-1,3,4-oxadiazole (6a). This compound was obtained as white solid, yield 72%, mp 196–200°C; IR (KBr): NH_2 3495, 3405, CN 1655, COC 1277, 1035 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 5.44 (s, 2H, NH_2), 6.81 (d, 2H, 8- and 10-H, J = 8.4 Hz), 7.30 (d, 2H, 7- and 11-H, J = 8.4 Hz), 7.41 (t, 3H, 14-, 15- and 16-H, J = 6.24 Hz), 7.80 ppm (dd, 2H, 13- and 17-H, J = 6.48 Hz, 1.96 Hz); ^{13}C-NMR (DMSO-d_6): δ 107.47 (6-C), 114.53 (8- and 10-C), 124.34 (12-C), 124.87 (13- and 17-C), 128.53 (15-C), 128.74 (7- and 11-C), 129.82 (14- and 16-C), 148.56 (9-C), 163.15 ppm (2- and 5-C). *Anal*. Calcd. for $C_{14}H_{11}N_3O$ (237.26): C, 70.87; H, 4.67; N, 17.71. Found: C, 70.78; H, 4.65; N, 17.77.

2-(4-Aminophenyl)-5-(2-hydroxyphenyl)-1,3,4-oxadiazole (6b). This compound was obtained as white solid, yield 74%, mp 167–171°C; IR (KBr): NH_2 3502, 3408, OH 3135, CN 1661, COC 1265, 1058 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 5.46 (s, 2H, NH_2), 6.78 (d, 2H, 8- and 10-H, J = 8.36 Hz), 6.92 (t, 1H, 16-H, J = 7.56 Hz), 6.97 (d, 1H, 14-H, J = 8.12 Hz), 7.24 (t, 1H, 15-H, J = 7.76 Hz), 7.29 (d, 2H, 7- and 11-H, J = 8.36 Hz), 7.45 (dd, 1H, 17-H, J = 7.72 Hz), 10.05 ppm (br s, 1H, OH); ^{13}C-NMR (DMSO-d_6): δ 107.52 (6-C), 109.15 (12-C), 114.48 (8- and 10-C), 116.58 (14-C), 119.57 (16-C), 125.42 (17-C), 128.82 (7- and 11-C), 131.63 (15-C), 148.65 (9-C), 155.67 (13-C), 162.74 ppm (2- and 5-C). *Anal*. Calcd.

for $C_{14}H_{11}N_3O_2$ (253.26): C, 66.40; H, 4.38; N, 16.59. Found: C, 66.34; H, 4.41; N, 16.64.

2-(4-Aminophenyl)-5-(4-hydroxyphenyl)-1,3,4-oxadiazole (6c). This compound was obtained as white solid, yield 78%, mp 190–195°C; IR (KBr): NH_2 3475, 3415, OH 3152, CN 1653, COC 1285, 1023 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 5.45 (s, 2H, NH_2), 5.61 (br s, 1H, OH), 6.80 (d, 2H, 8- and 10-H, J = 8.36), 6.93 (d, 2H, 14- and 16-H, J = 8.46 Hz), 7.32 (d, 2H, 7- and 11-H, J = 8.36 Hz), 7.69 ppm (d, 2H, 13- and 17-H, J = 8.46 Hz); ^{13}C-NMR (DMSO-d_6): δ 107.37 (6-C), 114.42 (8- and 10-C), 116.63 (14- and 16-C), 118.22 (12-C), 128.34 (13- and 17-C), 128.66 (7- and 11-C), 148.46 (9-C), 160.18 (15-C), 163.57 ppm (2- and 5-C). *Anal*. Calcd. for $C_{14}H_{11}N_3O_2$ (253.26): C, 66.40; H, 4.38; N, 16.59. Found: C, 66.43; H, 4.35; N, 16.57.

2-(4-Aminophenyl)-5-(3-nitrophenyl)-1,3,4-oxadiazole (6d). This compound was obtained as pale yellow solid, yield 80%, mp 210–214°C; ir (KBr): NH_2 3489, 3407, CN 1658, NO_2 1531, 1352, COC 1280, 1024 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 5.47 (s, 2H, NH_2), 6.78 (d, 2H, 8- and 10-H, J = 8.4 Hz), 7.31 (d, 2H, 7- and 11-H, J = 8.4 Hz), 7.82 (t, 1H, 16-H, J = 7.84 Hz), 8.23 (d, 1H, 17-H, J = 7.12 Hz), 8.34 (d, 1H, 15-H, J = 7.72 Hz), 8.45 ppm (s, 1H, 13-H); ^{13}C-NMR (DMSO-d_6): δ 107.59 (6-C), 114.68 (8- and 10-C), 120.17 (13-C), 124.37 (15-C), 125.68 (12-C), 128.64 (7- and 11-C), 130.74 (16-C), 133.43 (17-C), 148.42 (14-C), 148.55 (9-C), 163.95 ppm (2- and 5-C). *Anal*. Calcd. for $C_{14}H_{10}N_4O_3$ (282.25): C, 59.57; H, 3.57; N, 19.85. Found: C, 59.51; H, 3.54; N, 19.80.

2-(4-Aminophenyl)-5-(4-nitrophenyl)-1,3,4-oxadiazole (6e). This compound was obtained as light yellow solid, yield 85%, mp 201–205°C; ir (KBr): NH_2 3498, 3410, CN 1655, NO_2 1535, 1354, COC 1283, 1027 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 5.45 (s, 2H, NH_2), 6.81 (d, 2H, 8- and 10-H, J = 8.36 Hz), 7.32 (d, 2H, 7- and 11-H, J = 8.36 Hz), 8.07 (d, 2H, 13- and 17-H, J = 8.76 Hz), 8.32 ppm (d, 2H, 14- and 16-H, J = 8.76 Hz); ^{13}C-NMR (DMSO-d_6): δ 107.56 (6-C), 114.57 (8- and 10-C), 124.55 (14- and 16-C), 127.18 (13- and 17-C), 128.75 (7- and 11-C), 131.23 (12-C), 148.18 (15-C), 148.67 (9-C), 164.28 ppm (2- and 5-C). *Anal*. Calcd. for $C_{14}H_{10}N_4O_3$ (282.25): C, 59.57; H, 3.57; N, 19.85. Found: C, 59.54; H, 3.59; N, 19.83.

2-(4-Aminophenyl)-5-(4-methoxyphenyl)-1,3,4-oxadiazole (6f). This compound was obtained as white solid, yield 75%, mp 203–207°C; ir (KBr): NH_2 3505, 3415, CN 1660, COC 1257, 1025 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.59 (s, 3H, OCH_3), 5.43 (s, 2H, NH_2), 6.77 (d, 2H, 8- and 10-H, J = 8.4 Hz), 6.80 (d, 2H, 14- and 16-H, J = 8.72 Hz), 7.26 (d, 2H, 7- and 11-H, J = 8.4 Hz), 7.46 ppm (d, 2H, 13- and 17-H, J = 8.72 Hz); ^{13}C-NMR (DMSO-d_6): δ 55.19 (OCH_3), 107.43 (6-C), 114.28 (14- and 16-C), 114.45 (8- and 10-C), 116.85 (12-C), 126.57 (13- and 17-C), 128.62 (7- and 11-C), 148.51 (9-C), 160.61 (15-C), 163.77 ppm (2- and 5-C). *Anal*. Calcd. for $C_{15}H_{13}N_3O_2$ (267.28): C, 67.40; H, 4.90; N, 15.72. Found: C, 67.48; H, 4.86; N, 15.75.

General procedure for the synthesis of 2-[2-(2,6-dichlorophenyl)amino]benzyl-3-{4-[5-(substituted phenyl)-1,3,4-oxadiazol-2-yl]phenyl}quinazolin-4(3*H*)ones (7a-r). A mixture of 4-benzoxazinone (0.0025 mole) and 2-(4-aminophenyl)-5-substitutedphenyl-1,3,4-oxadiazole (0.0025 mole) in 10 mL of pyridine was refluxed on an oil bath for 6–8 h. After completion of the reaction, the oily mass was slowly poured onto crushed ice cold water contained HCl (5 mL) with continues stirring. For TLC monitoring toluene:ethylacetate:methanol (70:20:10) was used as mobile phase. The product obtained was filtered and washed several times with cold water, dried and recrystallized from ethanol.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl] quinazolin-4(3H)one (7a). This compound was obtained as white solid, yield 57%, mp 240–244°C; IR (KBr): NH 3445, CH_2 2927, 2852, CO 1681, CN 1649, 1611, COC 1273, 1057, CCl 748 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.52 (s, 2H, CH_2), 6.39 (d, 1H, 14-H, J = 7.96 Hz), 6.89 (t, 1H, 16-H, J = 7.4 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.56 Hz), 7.38–7.45 (m, 7H, 21-, 23-, 26-, 30-, 38-, 39- and 40-H), 7.49–7.55 (m, 3H, 6-, 27- and 29-H), 7.59 (d, 1H, 8-H, J = 8.12 Hz), 7.75 (t, 1H, 7-H, J = 7.8 Hz), 7.83 (dd, 2H, 37- and 41-H, J = 6.44 Hz, 1.92 Hz), 8.11 (d, 1H, 5-H, J = 7.68 Hz), 9.12 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.47 (11-C), 116.18 (16-C), 120.41 (14-C), 120.82 (10-C), 121.46 (28-C), 121.84 (26- and 30-C), 122.57 (8-C), 124.28 (22-C), 124.36 (36-C), 124.85 (37- and 41-C), 126.79 (15-C), 127.25 (12-C), 127.48 (21- and 23-C), 127.63 (6-C), 127.73 (27- and 29-C), 128.55 (39-C), 128.81 (5-C), 129.42 (20- and 24-C), 129.84 (38- and 40-C), 131.16 (17-C), 132.69 (25-C), 133.72 (7-C), 137.22 (19-C), 141.75 (13-C), 147.21 (9-C), 160.67 (4-C), 162.65 (2-C), 163.07 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{23}Cl_2N_5O_2$ (616.5): C, 68.19; H, 3.76; N, 11.36. Found: C, 68.12; H, 3.71; N, 11.41.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(2-hydroxyphenyl)-1,3,4-oxadiazol-2-yl]phenyl}quinazolin-4(3H)one (7b). This compound was obtained as off white solid, yield 61%, mp 228–232°C; IR (KBr): NH 3451, OH 3130, CH_2 2924, 2850, CO 1678, CN 1661, 1610, COC 1263, 1060, CCl 745 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.54 (s, 2H, CH_2), 6.41 (d, 1H, 14-H, J = 8 Hz), 6.88 (t, 1H, 16-H, J = 7.44 Hz), 6.93 (t, 1H, 40-H, J = 7.52 Hz), 6.98 (d, 1H, 38-H, J = 8.12 Hz), 7.03–7.08 (m, 2H, 15- and 22-H), 7.21–7.26 (m, 2H, 17- and 39-H), 7.41 (d, 2H, 21- and 23-H, J = 8.12 Hz), 7.45 (d, 2H, 26- and 30-H, J = 8.32 Hz), 7.47–7.54 (m, 4H, 6-, 27-, -29 and 41-H), 7.58 (d, 1H, 8-H, J = 8.16 Hz), 7.77 (t, 1H, 7-H, J = 7.84 Hz), 8.09 (d, 1H, 5-H, J = 7.72 Hz), 9.08 (br s, 1H, NH), 10.04 ppm (br s, 1H, OH); ^{13}C-NMR (DMSO-d_6): δ 32.54 (11-C), 109.22 (36-C), 116.14 (16-C), 116.61 (38-C), 119.63 (40-C), 120.51 (14-C), 120.84 (10-C), 121.48 (28-C), 121.76 (26- and 30-C), 122.53 (8-C), 124.32 (22-C), 125.42 (41-C), 126.73 (15-C), 127.28 (12-C), 127.44 (21- and 23-C), 127.62 (6-C), 127.85 (27- and 29-C), 128.75 (5-C), 129.36 (20- and 24-C), 131.11 (17-C), 131.64 (39-C), 132.52 (25-C), 133.68 (7-C), 137.23 (19-C), 141.83 (13-C), 147.25 (9-C), 155.75 (37-C), 160.58 (4-C), 162.55 (2-C), 162.68 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{23}Cl_2N_5O_3$ (632.49): C, 66.46; H, 3.67; N, 11.07. Found: C, 66.53; H, 3.63; N, 11.03.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-hydroxyphenyl)-1,3,4-oxadiazol-2-yl]phenyl}quinazolin-4(3H)one (7c). This compound was obtained as white solid, yield 65%, mp 251–255°C; IR (KBr): NH 3453, OH 3151, CH_2 2928, 2855, CO 1677, CN 1650, 1607, COC 1278, 1022, CCl 741 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.51 (s, 2H, CH_2), 5.59 (br s, 1H, OH), 6.40 (d, 1H, 14-H, J = 7.96 Hz), 6.90–6.95 (m, 3H, 16-, 38- and 40-H), 7.04–7.10 (m, 2H, 15- and 22-H), 7.23 (d, 1H, 17-H, J = 7.52 Hz), 7.39 (d, 2H, 21- and 23-H, J = 8.08 Hz), 7.44 (d, 2H, 26- and 30-H, J = 8.36 Hz), 7.50 (t, 1H, 6-H, J = 7.56 Hz), 7.55 (d, 2H, 27- and 29-H, J = 8.36 Hz), 7.61 (d, 1H, 8-H, J = 8.12 Hz), 7.70 (d, 2H, 37- and 41-H, J

= 8.44 Hz), 7.78 (t, 1H, 7-H, J = 7.76 Hz), 8.12 (d, 1H, 5-H, J = 7.64 Hz), 9.13 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.51 (11-C), 116.12 (16-C), 116.68 (38- and 40-C), 118.31 (36-C), 120.54 (14-C), 120.78 (10-C), 121.53 (28-C), 121.87 (26- and 30-C), 122.46 (8-C), 124.32 (22-C), 126.84 (15-C), 127.31 (12-C), 127.37 (21- and 23-C), 127.64 (6-C), 127.77 (27- and 29-C), 128.29 (37- and 41-C), 128.82 (5-C), 129.44 (20- and 24-C), 131.19 (17-C), 132.63 (25-C), 133.74 (7-C), 137.22 (19-C), 141.76 (13-C), 147.23 (9-C), 160.22 (39-C), 160.64 (4-C), 162.74 (2-C), 163.52 ppm (32- and 35-C); *Anal*. Calcd. for $C_{35}H_{23}Cl_2N_5O_3$ (632.49): C, 66.46; H, 3.67; N, 11.07. Found: C, 66.42; H, 3.72; N, 11.01.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(3-nitrophenyl)-1,3,4-oxadiazol-2-yl] phenyl}quinazolin-4(3H)one (7d). This compound was obtained as light orange solid, yield 58%, mp 280–285°C; IR (KBr): NH 3443, CH_2 2918, 2847, CO 1675, CN 1653, 1610, NO_2 1533, 1351, COC 1275, 1024, CCl 744 cm^{-1}; ^{1}H NMR (DMSO-d_6): δ 3.55 (s, 2H, CH_2), 6.42 (d, 1H, 14-H, J = 7.96 Hz), 6.91 (t, 1H, 16-H, J = 7.44 Hz), 7.03–7.09 (m, 2H, 15- and 22-H), 7.23 (d, 1H, 17-H, J = 7.6 Hz), 7.42 (d, 2H, 21- and 23-H, J = 8.16 Hz), 7.47 (d, 2H, 26- and 30-H, J = 8.28 Hz), 7.52 (t, 1H, 6-H, J = 7.6 Hz), 7.57 (d, 2H, 27- and 29-H, J = 8.28 Hz), 7.62 (d, 1H, 8-H, J = 8.12 Hz), 7.74 (t, 1H, 7-H, J = 7.8 Hz), 7.84 (t, 1H, 40-H, J = 7.8 Hz), 8.11 (d, 1H, 5-H, J = 7.68 Hz), 8.26 (d, 1H, 41-H, J = 7.12 Hz), 8.36 (d, 1H, 39-H, J = 7.68 Hz), 8.46 (s, 1H, 37-H), 9.11 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.46 (11-C), 116.23 (16-C), 120.22 (37-C), 120.53 (14-C), 120.64 (10-C), 121.47 (28-C), 121.75 (26- and 30-C), 122.45 (8-C), 124.34 (22-C), 124.46 (39-C), 125.73 (36-C), 126.73 (15-C), 127.21 (12-C), 127.47 (21- and 23-C), 127.58 (6-C), 127.65 (27- and 29-C), 128.85 (5-C), 129.52 (20- and 24-C), 130.78 (40-C), 131.21 (17-C), 132.54 (25-C), 133.45 (41-C), 133.62 (7-C), 137.19 (19-C), 141.68 (13-C), 147.07 (9-C), 148.51 (38-C), 160.53 (4-C), 162.77 (2-C), 163.89 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{22}Cl_2N_6O_4$ (661.49): C, 63.55; H, 3.35; N, 12.70. Found: C, 63.48; H, 3.39; N, 12.75.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-nitrophenyl)-1,3,4-oxadiazol-2-yl] phenyl}quinazolin-4(3H)one (7e). This compound was obtained as pale yellow solid, yield 74%, mp 245–249°C; IR (KBr): NH 3448, CH_2 2927, 2852, CO 1676, CN 1652, 1612, NO_2 1537, 1356, COC 1282, 1028, CCl 747 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 6.39 (d, 1H, 14-H, J = 7.92 Hz), 6.89 (t, 1H, 16-H, J = 7.36 Hz), 7.04–7.10 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.52 Hz), 7.39 (d, 2H, 21- and 23-H, J = 8.04 Hz), 7.45 (d, 2H, 26- and 30-H, J = 8.36 Hz), 7.48 (t, 1H, 6-H, J = 7.64 Hz), 7.55 (d, 2H, 27- and 29-H, J = 8.36 Hz), 7.61 (d, 1H, 8-H, J = 8.16 Hz), 7.76 (t, 1H, 7-H, J = 7.84 Hz), 8.05 (d, 2H, 37- and 41-H, J = 8.72 Hz), 8.10 (d, 1H, 5-H, J = 7.72 Hz), 8.34 (d, 2H, 38- and 40-H, J = 8.72 Hz), 9.13 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.61 (11-C), 116.27 (16-C), 120.63 (14-C), 120.73 (10-C), 121.54 (28-C), 121.82 (26- and 30-C), 122.58 (8-C), 124.26 (22-C), 124.47 (38- and 40-C), 126.62 (15-C), 127.12 (37- and 41-C), 127.33 (12-C), 127.55 (21- and 23-C), 127.63 (6-C), 127.74 (27- and 29-C), 128.76 (5-C), 129.44 (20- and 24-C), 131.18 (36-C), 131.27 (17-C), 132.63 (25-C), 133.56 (7-C), 137.29 (19-C), 141.77 (13-C), 147.15 (9-C), 148.13 (39-C), 160.65 (4-C), 162.63 (2-C), 164.25 ppm (32- and 35-C). *Anal*. Calcd. for (661.49): C, 63.55; H, 3.35; N, 12.70. Found: C, 63.46; H, 3.41; N, 12.74.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-methoxyphenyl)-1,3,4-oxadiazol-2-yl] phenyl}quinazolin-4(3H)one (7f). This compound was obtained as off white, yield 67%, mp 265-268°C; ir (KBr): NH 3453, CH_2 2924, 2850, CO 1672, CN 1654, 1608, COC 1257, 1023, CCl 743 cm^{-1}; ^{1}H nmr (DMSO-d_6): δ; 3.51 (s, 2H, CH_2), 3.60 (s, 3H, OCH_3), 6.38 (d, 1H, 14-H, J = 7.96 Hz), 6.79 (d, 2H, 38- and 40-H, J = 8.68 Hz), 6.88 (t, 1H, 16-H, J = 7.36 Hz), 7.03–7.08 (m, 2H, 15- and 22-H), 7.19 (d, 1H, 17-H, J = 7.52 Hz), 7.39–7.56 (m, 9H, 6-, 21-, 23-, 26-, 27-, 29-, 30-, 37- and 41-H), 7.62 (d, 1H, 8-H, J = 8.16 Hz), 7.75 (t, 1H, 7-H, J = 7.84 Hz), 8.12 (d, 1H, 5-H, J = 7.68 Hz), 9.15 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.53 (11-C), 55.23 (OCH_3), 114.32 (38- and 40-C), 116.14 (16-C), 116.79 (36-C), 120.47 (14-C), 120.74 (10-C), 121.54 (28-C), 121.83 (26- and 30-C), 122.56 (8-C), 124.27 (22-C), 126.62 (37- and 41-C), 126.74 (15-C), 127.22 (12-C), 127.42 (21- and 23-C), 127.51 (6-C), 127.75 (27- and 29-C), 128.76 (5-C), 129.43 (20- and 24-C), 131.13 (17-C), 132.70 (25-C), 133.66 (7-C), 137.23 (19-C), 141.72 (13-C), 147.16 (9-C), 160.56 (39-C), 160.73 (4-C), 162.78 (2-C), 163.75 ppm (32- and 35-C). *Anal*. Calcd. for $C_{36}H_{25}Cl_2N_5O_3$ (646.52): C, 66.88; H, 3.90; N, 10.83. Found: C, 66.97; H, 3.88; N, 10.78.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]-6-bromo-quinazolin-4(3H)one (7g). This compound was obtained as light reddish, yield 63%, mp 261–264°C; IR (KBr): NH 3452, CH_2 2929, 2855, CO 1682, CN 1651, 1614, COC 1272, 1053, CCl 742, CBr 574 cm^{-1}; ^{1}H nmr (DMSO-d_6): δ 3.54 (s, 2H, CH_2), 6.41 (d, 1H, 14-H, J = 8 Hz), 6.89 (t, 1H, 16-H, J = 7.48 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.22 (d, 1H, 17-H, J = 7.6 Hz), 7.39–7.44 (m, 5H, 21-, 23-, 38-, 39- and 40-H), 7.46 (d, 2H, 26- and 30-H, J = 8.32 Hz), 7.55 (d, 2H, 27- and 29-H, J = 8.32 Hz), 7.65 (d, 1H, 8-H, J = 8.36 Hz), 7.81 (dd, 2H, 37- and 41-H, J = 6.48 Hz, 1.96 Hz), 8.06 (d, 1H, 7-H, J = 8.36 Hz), 8.15 (s, 1H, 5-H), 9.11 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.55 (11-C), 116.16 (16-C), 120.57 (14-C), 121.41 (28-C), 121.54 (6-C), 121.74 (26- and 30-C), 123.18 (10-C), 124.26 (22-C), 124.35 (36-C), 124.58 (8-C), 124.84 (37- and 41-C), 126.85 (15-C), 127.24 (12-C), 127.47 (21- and 23-C), 127.62 (27- and 29-C), 128.54 (39-C), 129.46 (20- and 24-C), 129.80 (38- and 40-C), 131.15 (17-C), 132.26 (5-C), 132.53 (25-C), 136.41 (7-C), 137.31 (19-C), 141.82 (13-C), 146.23 (9-C), 160.71 (4-C), 162.74 (2-C), 163.11 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{22}BrCl_2N_5O_2$ (695.39): C, 60.45; H, 3.19; N, 10.07. Found: C, 60.54; H, 3.12; N, 10.11.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(2-hydroxyphenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-bromo-quinazolin-4(3H)one (7h). This compound was obtained as white solid, yield 55%, mp 246–250°C; IR (KBr): NH 3448, OH 3128, CH_2 2928, 2850, CO 1679, CN 1658, 1607, COC 1260, 1055, CCl 745, C-Br 566 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 6.39 (d, 1H, 14-H, J = 7.96 Hz), 6.88–6.93 (m, 2H, 16- and 40-H), 6.96 (d, 1H, 38-H, J = 8.12 Hz), 7.04–7.10 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.56 Hz), 7.26 (t, 1H, 39-H, J = 7.76 Hz), 7.40–7.46 (m, 5H, 21-, 23-, 26-, 30- and 41-H), 7.54 (d, 2H, 27- and 29-H, J = 8.28 Hz), 7.67 (d, 1H, 8-H, J = 8.32 Hz), 8.08 (d, 1H, 7-H, J = 8.32 Hz), 8.16 (s, 1H, 5-H), 9.08 (br s, 1H, NH), 10.06 ppm (br s, 1H, OH); ^{13}C-NMR (DMSO-d_6): δ 32.48 (11-C), 109.18 (36-C), 116.12

(16-C), 116.59 (38-C), 119.54 (40-C), 120.53 (14-C), 121.46 (6-C), 121.57 (28-C), 121.86 (26- and 30-C), 123.14 (10-C), 124.33 (22-C), 124.66 (8-C), 125.38 (41-C), 126.75 (15-C), 127.15 (12-C), 127.36 (21- and 23-C), 127.79 (27- and 29-C), 129.34 (20- and 24-C), 131.10 (17-C), 131.57 (39-C), 132.17 (5-C), 132.74 (25-C), 136.39 (7-C), 137.22 (19-C), 141.76 (13-C), 146.34 (9-C), 155.66 (37-C), 160.67 (4-C), 162.58 (2-C), 162.74 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{22}BrCl_2N_5O_3$ (711.39): C, 59.09; H, 3.12; N, 9.84. Found: C, 58.95; H, 3.17; N, 9.89.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-hydroxyphenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-bromo-quinazolin-4(3H)one (7i). This compound was obtained as off white solid, yield 66%, mp 232–236°C; IR (KBr): NH 3450, OH 3143, CH_2 2924, 2849, CO 1672, CN 1656, 1610, COC 1274, 1022, CCl 739, CBr 571 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.55 (s, 2H, CH_2), 5.62 (br s, 1H, OH), 6.43 (d, 1H, 14-H, J = 8 Hz), 6.90–6.96 (m, 3H, 16-, 38-, and 40-H), 7.04–7.09 (m, 2H, 15- and 22-H), 7.23 (d, 1H, 17-H, J = 7.6 Hz), 7.41 (d, 2H, 21- and 23-H, J = 8.12 Hz), 7.47 (d, 2H, 26- and 30-H, J = 8.32 Hz), 7.56 (d, 2H, 27- and 29-H, J = 8.32 Hz), 7.64 (d, 1H, 8-H, J = 8.36 Hz), 7.71 (d, 2H, 37- and 41-H, J = 8.48 Hz), 8.05 (d, 1H, 7-H, J = 8.36 Hz), 8.12 (s, 1H, 5-H), 9.14 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.55 (11-C), 116.18 (16-C), 116.65 (38- and 40-C), 118.26 (36-C), 120.52 (14-C), 121.53 (6-C), 121.64 (28-C), 121.89 (26- and 30-C), 123.24 (10-C), 124.37 (22-C), 124.45 (8-C), 126.85 (15-C), 127.21 (12-C), 127.53 (21- and 23-C), 127.72 (27- and 29-C), 128.32 (37- and 41-C), 129.44 (20- and 24-C), 131.22 (17-C), 132.26 (5-C), 132.71 (25-C), 136.47 (7-C), 137.18 (19-C), 141.75 (13-C), 146.21 (9-C), 160.15 (39-C), 160.62 (4-C), 162.72 (2-C), 163.64 ppm (32- and 35-C); *Anal*. Calcd. for $C_{35}H_{22}BrCl_2N_5O_3$ (711.39): C, 59.09; H, 3.12; N, 9.84. Found: C, 58.98; H, 3.08; N, 9.86.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(3-nitrophenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-bromo-quinazolin-4(3H)one (7j). This compound was obtained as yellow solid, yield 62%, mp 274–277°C; ir (KBr): NH 3444, CH_2 2920, 2846, CO 1682, CN 1647, 1612, NO_2 1528, 1345, COC 1280, 1025, CCl 748, CBr 569 cm^{-1}; ^{1}H NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 6.41 (d, 1H, 14-H, J = 7.96 Hz), 6.89 (t, 1H, 16-H, J = 7.36 Hz), 7.03–7.08 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.52 Hz), 7.39 (d, 2H, 21- and 23-H, J = 8.12 Hz), 7.44 (d, 2H, 26- and 30-H, J = 8.36 Hz), 7.53 (d, 2H, 27- and 29-H, J = 8.36 Hz), 7.66 (d, 1H, 8-H, J = 8.4 Hz), 7.81 (t, 1H, 40-H, J = 7.88 Hz), 8.06 (d, 1H, 7-H, J = 8.4 Hz), 8.14 (s, 1H, 5-H), 8.25 (d, 1H, 41-H, J = 7.16 Hz), 8.36 (d, 1H, 39-H, J = 7.76 Hz), 8.44 (s, 1H, 37-H), 9.11 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.47 (11-C), 116.22 (16-C), 120.12 (37-C), 120.48 (14-C), 121.57 (6-C), 121.68 (28-C), 121.91 (26- and 30-C), 123.15 (10-C), 124.26 (22-C), 124.35 (39-C), 124.49 (8-C), 125.64 (36-C), 126.82 (15-C), 127.21 (12-C), 127.42 (21- and 23-C), 127.82 (27- and 29-C), 129.52 (20- and 24-C), 130.69 (40-C), 131.17 (17-C), 132.25 (5-C), 132.65 (25-C), 133.37 (41-C), 136.46 (7-C), 137.22 (19-C), 141.79 (13-C), 146.32 (9-C), 148.41 (38-C), 160.56 (4-C), 162.78 (2-C), 163.93 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{21}BrCl_2N_6O_4$ (740.39): C, 56.78; H, 2.86; N, 11.35. Found: C, 56.87; H, 2.82; N, 11.29.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-nitrophenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-bromo-quinazolin-4(3H)one (7k). This compound was obtained as yellow solid, yield 65%, mp 258–262°C; IR (KBr): NH 3440, CH_2 2918, 2844, CO 1673, CN 1647, 1605, NO_2 1536, 1356, COC 1267, 1023, CCl 741, CBr 561 cm^{-1}; ^{1}H NMR (DMSO-d_6): δ 3.52 (s, 2H, CH_2), 6.43 (d, 1H, 14-H, J = 7.92 Hz), 6.91 (t, 1H, 16-H, J = 7.36 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.20 (d, 1H, 17-H, J = 7.52 Hz), 7.41 (d, 2H, 21- and 23-H, J = 8.08 Hz), 7.46 (d, 2H, 26- and 30-H, J = 8.36 Hz), 7.57 (d, 2H, 27- and 29-H, J = 8.36 Hz), 7.65 (d, 1H, 8-H, J = 8.36 Hz), 8.05 (d, 1H, 7-H, J = 8.36 Hz), 8.08 (d, 2H, 37- and 41-H, J = 8.68 Hz), 8.15 (s, 1H, 5-H), 8.31 (d, 2H, 38- and 40-H, J = 8.68 Hz), 9.13 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.55 (11-C), 116.27 (16-C), 120.56 (14-C), 121.54 (6-C), 121.63 (28-C), 121.85 (26- and 30-C), 123.05 (10-C), 124.36 (22-C), 124.42 (8-C), 124.64 (38- and 40-C), 126.94 (15-C), 127.15 (37- and 41-C), 127.26 (12-C), 127.54 (21- and 23-C), 127.77 (27- and 29-C), 129.43 (20- and 24-C), 131.17 (36-C), 131.24 (17-C), 132.19 (5-C), 132.59 (25-C), 136.54 (7-C), 137.20 (19-C), 141.91 (13-C), 146.24 (9-C), 148.15 (39-C), 160.72 (4-C), 162.81 (2-C), 164.33 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{21}BrCl_2N_6O_4$ (740.39): C, 56.78; H, 2.86; N, 11.35. Found: C, 56.68; H, 2.89; N, 11.31.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-methoxyphenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-bromo-quinazolin-4(3H)one (7l). This compound was obtained as orange solid, yield 70%, mp 289–292°C; ir (KBr): NH 3443, CH_2 2918, 2844, CO 1683, CN 1659, 1610, COC 1255, 1023, CCl 743, CBr 565 cm^{-1}; ^{1}H NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 3.61 (s, 3H, OCH_3), 6.39 (d, 1H, 14-H, J = 8 Hz), 6.77 (d, 2H, 38- and 40-H, J = 8.72 Hz), 6.89 (t, 1H, 16-H, J = 7.44 Hz), 7.04–7.10 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.56 Hz), 7.39 (d, 2H, 21- and 23-H, J = 8.12 Hz), 7.43 (d, 2H, 26- and 30-H, J = 8.32 Hz), 7.48 (d, 2H, 37- and 41-H, J = 8.72 Hz), 7.55 (d, 2H, 27- and 29-H, J = 8.32 Hz), 7.67 (d, 1H, 8-H, J = 8.4 Hz), 8.08 (d, 1H, 7-H, J = 8.4 Hz), 8.16 (s, 1H, 5-H), 9.10 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.63 (11-C), 55.15 (OCH_3), 114.25 (38- and 40-C), 116.27 (16-C), 116.83 (36-C), 120.47 (14-C), 121.57 (6-C), 121.68 (28-C), 121.88 (26- and 30-C), 123.13 (10-C), 124.34 (22-C), 124.46 (8-C), 126.55 (37- and 41-C), 126.91 (15-C), 127.17 (12-C), 127.56 (21- and 23-C), 127.82 (27- and 29-C), 129.38 (20- and 24-C), 131.25 (17-C), 132.19 (5-C), 132.73 (25-C), 136.52 (7-C), 137.23 (19-C), 141.94 (13-C), 146.12 (9-C), 160.56 (39-C), 160.68 (4-C), 162.65 (2-C), 163.80 ppm (32- and 35-C). *Anal*. Calcd. for $C_{36}H_{24}BrCl_2N_5O_3$ (725.42): C, 59.61; H, 3.33; N, 9.65. Found: C, 59.69; H, 3.37; N, 9.58.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]-6-iodo-quinazolin-4(3H)one (7m). This compound was obtained as light brownish solid, yield 63%, mp 256–258°C; IR (KBr): NH 3452, CH_2 2926, 2852, CO 1680, CN 1648, 1613, COC 1270, 1052, CCl 749, CI 618 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.52 (s, 2H, CH_2), 6.42 (d, 1H, 14-H, J = 8 Hz), 6.92 (t, 1H, 16-H, J = 7.48 Hz), 7.03–7.09 (m, 2H, 15- and 22-H), 7.23 (d, 1H, 17-H, J = 7.64 Hz), 7.29 (d, 1H, 8-H, J = 8.4 Hz), 7.38–7.43 (m, 5H, 21-, 23-, 38-, 39- and 40-H), 7.45 (d, 2H, 26- and 30-H, J = 8.28 Hz), 7.56 (d, 2H, 27- and 29-H, J = 8.28 Hz), 7.78 (dd, 2H, 37- and 41-H, J = 6.44 Hz, 1.92 Hz), 7.97 (d, 1H, 7-H, J = 8.4 Hz), 8.30 (s, 1H, 5-H), 9.13 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.46 (11-C), 93.17 (6-C), 116.22 (16-C), 120.45 (14-C), 121.53 (28-C), 121.84 (26- and 30-C), 122.43 (10-C), 124.18 (8-C), 124.25 (22-C), 124.37 (36-C), 124.86 (37- and 41-C),

126.76 (15-C), 127.33 (12-C), 127.44 (21- and 23-C), 127.78 (27- and 29-C), 128.55 (39-C), 129.34 (20- and 24-C), 129.77 (38- and 40-C), 131.27 (17-C), 132.75 (25-C), 136.24 (5-C), 137.18 (19-C), 141.86 (13-C), 142.38 (7-C), 146.05 (9-C), 160.62 (4-C), 162.82 (2-C), 163.21 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{22}Cl_2IN_5O_2$ (742.39): C, 56.62; H, 2.99; N, 9.43. Found: C, 56.73; H, 2.91; N, 9.36.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(2-hydroxyphenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-iodo-quinazolin-4(3H)one (7n). This compound was obtained as light reddish solid, yield 67%, mp 266–270°C; IR (KBr): NH 3446, OH 3135, CH_2 2921, 2846, CO 1673, CN 1656, 1611, COC 1255, 1048, CCl 743, CI 620 cm^{-1}; ^{1}H NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 6.40 (d, 1H, 14-H, J = 7.96 Hz), 6.87–6.95 (m, 2H, 16- and 40-H), 6.98 (d, 1H, 38-H, J = 8.12 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.52 Hz), 7.23–7.28 (m, 2H, 8- and 39-H), 7.40 (d, 2H, 21- and 23-H, J = 8.12 Hz), 7.44–7.47 (m, 3H, 26-, 30- and 41-H), 7.57 (d, 2H, 27- and 29-H, J = 8.28 Hz), 7.95 (d, 1H, 7-H, J = 8.36 Hz), 8.28 (s, 1H, 5-H), 9.11 (br s, 1H, NH), 10.06 ppm (br s, 1H, OH); ^{13}C NMR (DMSO-d_6): δ 32.62 (11-C), 93.33 (6-C), 109.28 (36-C), 116.19 (16-C), 116.67 (38-C), 119.68 (40-C), 120.46 (14-C), 121.48 (28-C), 121.80 (26- and 30-C), 122.53 (10-C), 124.16 (8-C), 124.25 (22-C), 125.51 (41-C), 126.85 (15-C), 127.31 (12-C), 127.45 (21- and 23-C), 127.68 (27- and 29-C), 129.44 (20- and 24-C), 131.18 (17-C), 131.72 (39-C), 132.64 (25-C), 136.30 (5-C), 137.21 (19-C), 141.82 (13-C), 142.47 (7-C), 146.22 (9-C), 155.61 (37-C), 160.73 (4-C), 162.52 (2-C), 162.69 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{22}Cl_2IN_5O_3$ (758.39): C, 55.43; H, 2.92; N, 9.23. Found: C, 55.40; H, 2.95; N, 9.29.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-hydroxyphenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-iodo-quinazolin-4(3H)one (7o). This compound was obtained as off white solid, yield 65%, mp 269–273°C; IR (KBr): NH 3453, OH 3145, CH_2 2927, 2854, CO 1681, CN 1657, 1614, COC 1273, 1024, CCl 740, CI 619 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.51 (s, 2H, CH_2), 5.63 (br s, 1H, OH), 6.38 (d, 1H, 14-H, J = 7.96 Hz), 6.88 (t, 1H, 16-H, J = 7.4 Hz), 6.94 (d, 2H, 38- and 40-H, J = 8.44 Hz), 7.03–7.08 (m, 2H, 15- and 22-H), 7.19 (d, 1H, 17-H, J = 7.56 Hz), 7.26 (d, 1H, 8-H, J = 8.4 Hz), 7.38 (d, 2H, 21- and 23-H, J = 8.08 Hz), 7.43 (d, 2H, 26- and 30-H, J = 8.36 Hz), 7.54 (d, 2H, 27- and 29-H, J = 8.36 Hz), 7.70 (d, 2H, 37- and 41-H, J = 8.44 Hz), 7.94 (d, 1H, 7-H, J = 8.4 Hz), 8.27 (s, 1H, 5-H), 9.09 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.45 (11-C), 93.21 (6-C), 116.13 (16-C), 116.71 (38- and 40-C), 118.32 (36-C), 120.48 (14-C), 121.46 (28-C), 121.76 (26- and 30-C), 122.42 (10-C), 124.16 (8-C), 124.25 (22-C), 126.76 (15-C), 127.20 (12-C), 127.49 (21- and 23-C), 127.67 (27- and 29-C), 128.39 (37- and 41-C), 129.52 (20- and 24-C), 131.11 (17-C), 132.56 (25-C), 136.35 (5-C), 137.26 (19-C), 141.81 (13-C), 142.36 (7-C), 146.14 (9-C), 160.22 (39-C), 160.74 (4-C), 162.83 (2-C), 163.60 ppm (32- and 35-C); *Anal*. Calcd. for $C_{35}H_{22}Cl_2IN_5O_3$ (758.39): C, 55.43; H, 2.92; N, 9.23. Found: C, 55.48; H, 2.98; N, 9.18.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(3-nitrophenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-iodo-quinazolin-4(3H)one (7p). This compound was obtained as brown solid, yield 61%, mp 286–290°C; IR (KBr): NH 3444, CH_2 2926, 2853, CO 1675, CN 1653, 1610, NO_2 1530, 1346, COC 1276, 1028, CCl 742, CI 613 cm^{-1}; ^{1}H NMR (DMSO-d_6): δ 3.53 (s, 2H, CH_2), 6.40 (d, 1H, 14-H, J = 7.96 Hz), 6.91 (t, 1H, 16-H, J = 7.36 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.21 (d, 1H, 17-H, J = 7.52 Hz), 7.28 (d, 1H, 8-H, J = 8.44 Hz), 7.39 (d, 2H, 21- and 23-H, J = 8.08 Hz), 7.44 (d, 2H, 26- and 30-H, J = 8.32 Hz), 7.55 (d, 2H, 27- and 29-H, J = 8.32 Hz), 7.80 (t, 1H, 40-H, J = 7.84 Hz), 7.96 (d, 1H, 7-H, J = 8.44 Hz), 8.22 (d, 1H, 41-H, J = 7.12 Hz), 8.29 (s, 1H, 5-H), 8.35 (d, 1H, 39-H, J = 7.72 Hz), 8.45 (s, 1H, 37-H), 9.10 ppm (br s, 1H, NH); ^{13}C NMR (DMSO-d_6): δ 32.61 (11-C), 93.17 (6-C), 116.22 (16-C), 120.23 (37-C), 120.52 (14-C), 121.52 (28-C), 121.83 (26- and 30-C), 122.57 (10-C), 124.10 (8-C), 124.30 (22-C), 124.35 (39-C), 125.72 (36-C), 126.84 (15-C), 127.32 (12-C), 127.53 (21- and 23-C), 127.74 (27- and 29-C), 129.47 (20- and 24-C), 130.76 (40-C), 131.22 (17-C), 132.64 (25-C), 133.44 (41-C), 136.46 (5-C), 137.34 (19-C), 141.92 (13-C), 142.46 (7-C), 146.21 (9-C), 148.38 (38-C), 160.62 (4-C), 162.77 (2-C), 164.05 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{21}Cl_2IN_6O_4$ (787.39): C, 53.39; H, 2.69; N, 10.67. Found: C, 53.47; H, 2.63; N, 10.61.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-nitrophenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-iodo-quinazolin-4(3H)one (7q). This compound was obtained as light brownish solid, yield 70%, mp 254–257°C; IR (KBr): NH 3440, CH_2 2918, 2846, CO 1684, CN 1656, 1613, NO_2 1535, 1348, COC 1278, 1025, CCl 750, CI 618 cm^{-1}; ^{1}H-NMR (DMSO-d_6): δ 3.54 (s, 2H, CH_2), 6.42 (d, 1H, 14-H, J = 8 Hz), 6.89 (t, 1H, 16-H, J = 7.44 Hz), 7.04–7.10 (m, 2H, 15- and 22-H), 7.22 (d, 1H, 17-H, J = 7.6 Hz), 7.29 (d, 1H, 8-H, J = 8.36 Hz), 7.41 (d, 2H, 21- and 23-H, J = 8.12 Hz), 7.47 (d, 2H, 26- and 30-H, J = 8.36 Hz), 7.56 (d, 2H, 27- and 29-H, J = 8.36 Hz), 7.95 (d, 1H, 7-H, J = 8.36 Hz), 8.06 (d, 2H, 37- and 41-H, J = 8.72 Hz), 8.31 (s, 1H, 5-H), 8.35 (d, 2H, 38- and 40-H, J = 8.72 Hz), 9.12 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.51 (11-C), 93.25 (6-C), 116.15 (16-C), 120.47 (14-C), 121.60 (28-C), 121.87 (26- and 30-C), 122.50 (10-C), 124.16 (8-C), 124.22 (22-C), 124.61 (38- and 40-C), 126.78 (15-C), 127.23 (37- and 41-C), 127.26 (12-C), 127.45 (21- and 23-C), 127.82 (27- and 29-C), 129.42 (20- and 24-C), 131.12 (17-C), 131.28 (36-C), 132.68 (25-C), 136.34 (5-C), 137.25 (19-C), 141.84 (13-C), 142.39 (7-C), 146.15 (9-C), 148.24 (39-C), 160.72 (4-C), 162.85 (2-C), 164.30 ppm (32- and 35-C). *Anal*. Calcd. for $C_{35}H_{21}Cl_2IN_6O_4$ (787.39): C, 53.39; H, 2.69; N, 10.67. Found: C, 53.52; H, 2.61; N, 10.63.

2-[2-(2,6-Dichlorophenyl)amino]benzyl-3-{4-[5-(4-methoxyphenyl)-1,3,4-oxadiazol-2-yl] phenyl}-6-iodo-quinazolin-4(3H)one (7r). This compound was obtained as light orange solid, yield 68%, mp 276–278°C; IR (KBr): NH 3453, CH_2 2925, 2850, CO 1676, CN 1651, 1609, COC 1258, 1074, CCl 746, CI 618 cm^{-1}; ^{1}H NMR (DMSO-d_6): δ 3.52 (s, 2H, CH_2), 3.58 (s, 3H, OCH_3), 6.39 (d, 1H, 14-H, J = 7.96 Hz), 6.78 (d, 2H, 38- and 40-H, J = 8.68 Hz), 6.88 (t, 1H, 16-H, J = 7.36 Hz), 7.04–7.09 (m, 2H, 15- and 22-H), 7.20 (d, 1H, 17-H, J = 7.52 Hz), 7.26 (d, 1H, 8-H, J = 8.4 Hz), 7.39 (d, 2H, 21- and 23-H, J = 8.08 Hz), 7.44–7.49 (m, 4H, 26-, 30-, 37- and 41-H), 7.54 (d, 2H, 27- and 29-H, J = 8.36 Hz), 7.97 (d, 1H, 7-H, J = 8.4 Hz), 8.28 (s, 1H, 5-H), 9.10 ppm (br s, 1H, NH); ^{13}C-NMR (DMSO-d_6): δ 32.43 (11-C), 55.22 (OCH_3), 93.21 (6-C), 114.32 (38- and 40-C), 116.13 (16-C), 116.92 (36-C), 120.42 (14-C), 121.58 (28-C), 121.87 (26- and 30-C), 122.56 (10-C), 124.17 (8-C), 124.33 (22-C), 126.63 (37- and 41-C), 126.82 (15-C), 127.21 (12-C), 127.48 (21- and 23-C), 127.69 (27- and 29-C), 129.42 (20- and 24-C), 131.14 (17-C), 132.57 (25-C), 136.39

(5-C), 137.28 (19-C), 141.83 (13-C), 142.44 (7-C), 146.12 (9-C), 160.54 (39-C), 160.67 (4-C), 162.74 (2-C), 163.77 ppm (32- and 35-C). *Anal*. Calcd. for $C_{36}H_{24}Cl_2IN_5O_3$ (772.42): C, 55.98; H, 3.13; N, 9.07. Found: C, 55.89; H, 3.07; N, 9.14.

General procedure for *in vitro* antimicrobial screening. The MICs of synthesized compounds were carried out by broth microdilution method as described by Rattan [36]. Antibacterial activity was screened against two gram-positive bacteria (*S. aureus* MTCC 96, *S. pyogenes* MTCC 443) and two gram-negative bacteria (*E. coli* MTCC 442, *P. aeruginosa* MTCC 441). Ampicillin was used as a standard antibacterial agent. Antifungal activity was screened against three fungal species *C. albicans* MTCC 227, *A. niger* MTCC 282 and *A. clavatus* MTCC 1323. Greseofulvin was used as a standard antifungal agent.

All MTCC cultures were collected from Institute of Microbial Technology, Chandigarh and tested against above mentioned known drugs. Mueller Hinton broth was used as nutrient medium to grow and dilute the drug suspension for the test. Inoculum size for test strain was adjust to 10^8 CFU (Colony Forming Unit) per milliliter by comparing the turbidity. DMSO was used as diluents to get desired concentration of drugs to test upon standard bacterial strains. Serial dilutions were prepared in primary and secondary screening. The control tube containing no antibiotic was immediately sub cultured (before inoculation) by spreading a loopful evenly over a quarter of plate of medium suitable for the growth of the test organism and put for incubation at 37°C overnight. The tubes were then incubated overnight. The MIC of the control organism was read to check the accuracy of the drug concentrations. The lowest concentration inhibiting growth of the organism was recorded as the MIC. All the tubes not showing visible growth (in the same manner as control tube described above) was sub cultured and incubated overnight at 37°C. The amount of growth from the control tube before incubation (which represents the original inoculum) was compared. Subcultures might show: similar number of colonies indicating bacteriostatic; a reduced number of colonies indicating a partial or slow bactericidal activity and no growth if the whole inoculum has been killed. The test must include a second set of the same dilutions inoculated with an organism of known sensitivity. Each synthesized drug was diluted obtaining 2000 μg/mL concentration, as a stock solution. In primary screening 500, 250, and 125 μg/mL concentrations of the synthesized drugs were taken. The active synthesized drugs found in this primary screening were further tested in a second set of dilution against all microorganisms. The drugs found active in primary screening were similarly diluted to obtain 100, 50, 25, 12.5, 6.250, 3.125, and 1.5625 μg/mL concentrations. The highest dilution showing at least 99 % inhibition is taken as MIC.

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