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in Vitro Pharmacological Studies of Some 6, 8-Dibromo Quinazolin-4(3H) Ones Derivatives

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ABSTRACT

Some nitrogen containing 6, 8-dibromoquinazolin-4(3H) one derivatives were synthesized by the base catalyzed cyclisation of acrylamide with phenyl hydrazine hydrate. The structural confirmation of the synthesized compounds was carried out on the basis of elemental analysis, IR and NMR spectra results. The title compounds were screened for antibacterial and antifungal activities in vitro.

KEYWORDS : Antibacterial, Antifungal, Quinazolin-4(3H) one.

INTRODUCTION

Heterocyclic derivatives are pharmaceutically very important class of compounds which were developed better result in the medicinal chemistry. Quinazolin-4(3H) one and its nitrogen containing precursors had diversified biological properties. Quinazolin-4(3H) one with its pyrazoline analogs have extensively used as anti-inflammatory, anticancer [1-2], anti-malarial[3-4], antidepressant, anticonvulsant[5], analgesics[6], Cox-II inhibitor[7-8], antitumor[9], anti-hyperglycemic[10], HIV-1 integrase inhibitors[11], in medicinal chemistry.

Encourage by the wide spectrum of therapeutic activities exhibited and literature survey of quinazoline derivatives revealed that in this study, we have synthesized quinazolin-4(3H) one incorporating two heterocyclic moieties pyrazoline at C-3 and quinoline at C-2 respectively and studied its antibacterial and antifungal activities. The potency (Edwin and Marion 1945) of these compounds was calculated and compare with standard drugs to observe the strength of these compounds.

MATERIAL AND METHOD

The reagent grade chemicals were purchased from commercial sources and further purified before use. The melting points of all synthesized compounds were taken in open capillary tube and are uncorrected. The purities of all synthesized compounds were checked by TLC on Merck silica gel 60 F 254 using toluene: ethyl acetate (8:2) as mobile phase, and spots were visualized under UV radiation. The IR spectra of the synthesized compounds were recorded on Perkin-Elmer 1300 FTIR spectrophotometer using KBr pellets and frequencies are recorded in cm^{-1}. ^1H NMR and ^{13}C NMR spectra were recorded on Bruker Advance II 400 NMR spectrometer using deutero $CDCl_3$ as a solvent. The chemical shifts were reported in (δ ppm) downfield using tetra methyl silane as internal standard. Elemental analyses of newly synthesized compounds were carried out on Carlo Ebra 1108 analyzer.3-(6-chloro-2-phenylquinolin) acetyl chloride 1 was synthesized by literature procedure (Furniss et al., 1989).

Synthesis of 2-[3-(6-chloro-2-phenyl)quinolin-3-yl]methyl–6,8-dibromo-3,1-benzoxazin-4(3H)one 2

To a solution of 3-(6-chloro-2-phenylquinolin)acetyl chloride (3.16 g, 0.01 mol) in pyridine (25ml) kept on an ice bath at 0-5 ^{0}C. Add small portion of 3:5-dibromo anthranilic acid (2.95 g, 0.01 mol) and stirred for 1 h. to keep the temperature between 0-5 ^{0}C. Further reaction mixture was stirred 1 h. at room temperature. A pasty mass thus obtained was washed thoroughly with sodium bicarbonate (5 %) to remove unreacted acid. Thus solid separated was filtered, dried and recrystalised from methanol.

M.P.: 162 ^{0}C. Yeild : 79 % IR(KBr):3073,2861(C=-H)1725,(C=O)1616,(C-N),1327(C-N),1238(C-O-C), 782(C-Cl),578(C-Br).Anal. (%) for $C_{24}H_{13}N_2O_2Br_2Cl$ Calcd; C, 51.75; H, 2.33; N, 5.03; Found; C, 51.77; H, 2.34; N, 5.05.

Synthesis of 3-Amino-2-[3-(6-chloro-2-phenyl)quinolin-3-yl]methyl–6,8-dibromoquinazolin–4(3H) one 3

To a mixture of 2-[3-(6-chloro-2-phenyl)quinolin-3-yl]methyl–6,8-dibromo-3,1-benzoxazin-4(3H) one (5.565 g, 0.01 mol) and hydrazine(99 %) (0.50 g, 0.01 mol) in 25.0 ml pyridine was heated at 180-200 ^{0}C in an oil bath for 5-6 h. The oily mass was obtained, cooled and slowly poured onto crushed acidic (HCl, 25ml) ice cold water with occasional stirring. The product obtained was filtered and washed several times with water. The crushed product was dried and recrystalized from ethanol.

M.P. :145 ^{0}C. Yeild : 74 % IR(KBr) : 3407(NH), 3069, 2863(C-H), 1718(C=O), 1614(C=N), 1325(C-N), 779(C-Cl), 580(C-Br). ^{1}HNMR($CDCl_3$): 2.11(s, 2H, -N-NH_2), 6.37-7.94(m, 11H, Ar-H), 2.62(s, 2H, -CH_2). Anal. (%) for $C_{24}H_{15}N_4OBr_2Cl$ Calcd; C, 50.48; H, 2.62; N,9.81; Found; C, 50.49; H, 2.64; N, 9.83.

Synthesis of 2-[3-(6-chloro-2-phenyl)quinolin-3-yl]methyl-3-acetamido-6,8-dibromoquinazolin-4(3H)-one 4

To a solution of 3-Amino-2-[3-(6-chloro-2-phenyl)quinolin-3-yl]methyl–6,8-dibromoquinazolin–4(3H) one (5.705 g, 0.01 mol) in dry benzene(50 ml), acetyl chloride(0.785g, 0.01mol) was added drop by drop at 0-5 ^{0}C, for 1 h with constant stirring after complete of addition, reaction mixture was kept overnight. The excess of solvent was distilled off under reduced pressure and then poured onto ice, the solid thus obtained was filtered off and recrystalized from methanol.

M.P. :173 ^{0}C. Yeild : 69 % IR(KBr): 3407(NH), 3063,2864(C-H),1721(-C=O), 1640(C=O of –$COCH_3$), 1323(C-N), 774(C-Cl), 576(C-I). ^{1}H-NMR(-$CDCl_3$) : 2.12(s, 1H, -N-NH-), 6.33- 7.96(m, 11H, Ar-H), 2.73(s, 3H, -$COCH_3$), 2.63(s, 2H, -CH_2). Anal. (%) for $C_{26}H_{17}N_4O_2Br_2Cl$ Calcd; C, 50.93; H, 2.77; N, 9.14; Found; C, 50.94; H, 2.79; N, 9.16.

Synthesis of 2-[3-(6-chloro-2-phenyl)quinolin-3-yl]methyl-3-substituted phenyl acryl amido-6,8-dibromoquinazolin-4(3H)-one 5a

To a solution of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl]methyl-3-acetamido-6,8-dibromoquinazolin-4(3H)-one (6.125g, 0.01 mol) in absolute ethanol (50 ml) and add benzaldehyde (1.06g, 0.01 mol) in 2 % NaOH was refluxed for 10-12 h., cooled and poured into ice cold water. The solid thus obtained was filtered, washed with water and recrystalized from methanol.

M.P.: 151 ^{0}C. Yeild: 74 % IR(KBr) : 3409(NH), 3062, 2859(C-H), 1719(C =O), 1641(C=O of –$COCH_3$), 1578 (CH=CH), 1318(C-N), 778(C-Cl), 579(C-Br).^{1}H -NMR($CDCl_3$) : 2.11(s, 1H, -N-NH), 6.38- 7.91(m, 16H, Ar-H), 2.63(s, 2H, -CH_2), 6.81(d, 1H, COCH=), 8.61(d, 1H, =CH-Ar). Anal; (%) $C_{33}H_{21}N_4O_2Br_2Cl$ Calcd; C, 56.53; H, 2.99; N, 7.99; Found; C, 56.54; H, 3.01; N, 8.02.

The remaining 5b-l compounds were prepared by the above mention similar method.

Synthesis of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–(1, 5-diphenyl-4, 5-dihydro-1H-pyrazol-3-yl amino)-6,8-dibromoquinazolin-4(3H)-one 6a

To a solution of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3-substituted phenyl acryl amido-6, 8-dibromoquinazolin-4(3H)-one (7.005 g, 0.01 mol) in methanol, add phenyl hydrazine hydrate (99%) (2.16g, 0.02mol)and few drops of glacial acetic acid. The reaction mixture was refluxed for 8-10 h., distilled the excess methanol and cooled. Thus the solid separated was filtered, washed with water and recrystalized from methanol.

M.P.: 142-143 ^{0}C. Yeild: 78 % IR(KBr): 3371(N-H),3063,2859(-C - H) , 1 7 2 8 (C = O) , 1 6 1 6 (C = N) , 1 3 1 9 (C - N) , 7 8 1 (C - Cl),578(C-Br).^{1}HNMR(CDCl$_3$):2.13(d,1H,=N-NH),3.62(s,2H,-CH$_2$),3.06 (d,1Ha), 3.45(d,1Hb), 6.51(t,1Hx), 6.43-7.95(m,21H,Ar-H). ^{13}C NMR: 31.4(-CH$_2$), 36.5, 41.1, 161.2(pyrazol-C), 162.2 (>C=O), 173.1(immine aromatic-C) 109.21-143.20(aromatic-33C). Anal; (%) $C_{39}H_{27}N_6OBr_2Cl$ Calcd; C, 59.20; H, 3.41; N,10.62; Found; C, 59.22; H, 3.42; N, 10.63.

The remaining 6b-l compounds were prepared by the above mention similar method.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl]methyl-3–[5-(2-chloro)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-yl amino]-6,8-dibromoquinazolin-4(3H)-one(6b)

M.P.:168-1690C.Yeild:72%IR(KBr):3367(N-H),3059,2861(C-H),1727(C=O),1616(C=N),1318(C-N),780(C-Cl),573(C-Br).1HNMR(CDCl3):2.12(d,1H,=N-NH),3.63(s,2H,-CH2),3.05(d,1Ha),3.47(d,1Hb),6.52(t,1Hx), 6.42-7.96(m,20H,Ar-H).13C NMR: 31.3(-CH2), 36.4, 41.6, 160.9 (immine pyrazol-C),162.2(>C=O),173.1(immine aromatic-C), 109.21-143.20(aromatic-33C). Anal; (%) $C_{39}H_{26}N_6OBr_2Cl_2$ Calcd; C, 56.72; H, 3.15; N,10.18; Found; C, 56.73; H, 3.16; N, 10.21.

Spectral data of 6c: 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(3-chloro) phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6c)

M.P.: 158-1590C.Yeild: 74 % IR(KBr): 3372(N-H),3061, 2859(C-H),1729(-C=O),1616(C=N),1317(C-N),782(C-Cl),575(C-Br).1HNMR(CDCl3):2.13(-d,1H,=N-NH),3.63(s,2H,-CH2),3.06(d,1Ha), 3.48 (d,1Hb), 6.54(t,1Hx), 6.43-7.96(m,20H,Ar-H). 13C NMR: 31.6(-CH2), 36.7, 41.3, 161.1 (imminepyrazol-C),162.1(>C=O),173.1(imminearomatic-C), 109.21-143.20(aromatic-33C). Anal; (%)C39H26N6OBr2Cl2 Calcd; C, 56.72; H, 3.15; N,10.18; Found; C, 56.74; H, 3.15; N, 10.19.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(4-chloro) phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6d)

M . P . : 1 7 3 - 1 7 4 0 C . Y e i l d : 7 6 % IR(KBr):3369(N-H),3062,2861(C-H),1727(C=O),1616(C=N),1319(C-N), 781(C-Cl),578(C-Br). 1HNMR (CDCl3): 2.13 (d,1H,=N-NH),3.63(s,2H,-CH2), 3.07 (d,1Ha), 3.48(d,1Hb), 6.55(t,1Hx), 6.43-7.96(m,20H,Ar-H).13C NMR: 31.5(-CH2), 36.3, 41.5, 161.2 (imminepyrazol-C),162.2(>-C=O),173.1(immine aromatic-C), 109.21-143.20(aromatic-33C). Anal; (%)C39H26N6OBr2Cl2 Calcd; C, 56.72; H, 3.15; N,10.18; Found; C, 56.73; H, 3.17; N, 10.20.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(2-hydroxy)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6e)

M.P.:148-150 ^{0}C.Yeild: 75 % IR(KBr):3543(O-H),3369(N-H),3063,2859 (C-H),1729(C=O),1616 (C=N), 1318(C-N), 780(C-Cl),576(C-Br).^{1}H NMR(CDCl$_3$): 2.12(d,1H,=N-NH), 3.62(s,2H,-CH$_2$), 3.06(d,1Ha), 3.48(d,1Hb),6.54(t,1Hx), 6.43-7.96(m,20H,Ar-H),10.38(s,1H,-OH). ^{13}C NMR: 31.4(-CH$_2$), 36.4, 41.3, 161.1(pyrazol-C), 162.1(>C=O), 173.1(immine aromatic-C) 109.21-143.20(aromatic-33C). Anal; (%) $C_{39}H_{27}N_6OBr_2Cl$ Calcd; C, 58.02; H, 3.34; N,10.41; Found; C, 58.03; H, 3.36; N, 10.42.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(3-hydroxy)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6f)

M.P.: 137-138 ^{0}C.Yeild: 73 %IR(KBr): 3547(O-H), 3371(N-H), 3061,2863(C-H), 1729(C=O), 1616 (C=N),1319(C-N), 781(C-Cl),579(-C-Br). ^{1}H NMR(CDCl$_3$): 2.13(d,1H,=N-NH),3.63 (s,2H,-CH$_2$), 3.07(d,1Ha), 3.45(d,1Hb),6.52(t,1Hx), 6.43-7.96(m,20H,Ar-H),10.39(s,1H,-OH). ^{13}C NMR: 31.5(-CH$_2$), 36.4, 41.6, 161.2 (immine pyrazol-C), 162.2(>C=O), 173.1(immine aromatic-C), 109.21-143.20 (aromatic-33C). Anal; (%) $C_{39}H_{27}N_6OBr_2Cl$ Calcd; C, 58.02; H, 3.34; N,10.41; Found; C, 58.04; H, 3.35; N, 10.45.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(4-hydroxy)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6g)

M.P.: 156-157 ^{0}C.Yeild: 69 %IR(KBr): 3546(O-H), 3369(N-H), 3062,2861 (C-H),1727(C=O), 1616 (C=N),1319(C-N), 778(C-Cl), 576(C-Br). ^{1}H NMR(CDCl$_3$): 2.13(d,1H,=N-NH),3.62 (s,2H,-CH$_2$), 3.06(d,1Ha), 3.46(d,1Hb),6.52(t,1Hx), 6.43-7.96(m,20H,Ar-H), 10.38(s,1H, -OH). ^{13}C NMR: 31.4(-CH$_2$), 36.5, 41.4, 161.1(immine pyrazol-C), 162.1(>C=O),173.3(immine aromatic-C), 109.21-143.20(aromatic-33C). Anal; (%) $C_{39}H_{27}N_6OBr_2Cl$ Calcd; C, 58.02; H, 3.34; N,10.41; Found; C, 58.04; H, 3.36; N, 10.44.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(2-nitro)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6h)

M . P . : 1 8 6 - 1 8 7 ^{0} C . Y e i l - d:70%IR(KBr):3375(N=-H)3063,2859,(C-H)1729,(C=O)1616,(C-N),1567,1361(-NO$_2$),1317(C-N),783(C-Cl),579(C-Br).^{1} H NMR(CDCl$_3$):2.13(d,1H,=N-NH),3.62(s,2H,-CH$_2$),3.07(d,1Ha),3.46(d,1Hb),6.53(-t,1Hx),6.43-7.96(m,20H,Ar-H).^{13}C NMR : 31.5(-CH$_2$), 36.3, 41.7, 161.4 (immine pyrazol-C),162.2(>C=O),173.1(immine aromatic-C), 109.21-143.20(aromatic-33C). Anal; (%) $C_{39}H_{26}N_7O_3Br_2Cl$ Calcd; C, 56.01; H, 3.11; N,11.72; Found; C, 56.03; H, 3.13; N, 11.73.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(3-nitro)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6i)

M.P.:177-178^{0}C.Yeild:67%IR(KBr):3371(NH),3062,2857(-C-H),1725(C=O),1616(C=N),1566,1361(-NO$_2$),1319(C-N),779(C-Cl),577(C-Br). ^{1}H NMR(CDCl$_3$): 2.13(d,1H,=N-NH),3.63 (s,2H,-CH$_2$), 3.06(d,1Ha),3.46(d,1Hb),6.52(t,1Hx),6.43-7.96(m,20H,Ar-H). ^{13}CNMR:31.4(-CH$_2$),36.5,41.6,161.2(imminepyrazol-C),162.1(>C=O),172.9(immine aromatic-C), 109.21-143.20 (aromatic-33C). Anal; (%)$C_{39}H_{26}N_7O_3Br_2Cl$ Calcd; C, 56.01; H, 3.11; N,11.72; Found; C, 56.02; H, 3.13; N, 11.74.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(4-nitro)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6j)

M.P.: 291-293 ^{0}C.Yeild: 73 % IR (KBr):3373(NH), 3061, 2859(C-H), 1726(C=O), 1616(C=N), 1565, 1361(-NO$_2$), 1319(C-N), 781(C-Cl), 576(C-Br). ^{1}H NMR(CDCl$_3$): 2.13(d,1H,=N-NH), 3.63(s,2H,-CH$_2$), 3.07(d,1Ha), 3.46(d,1Hb),6.53(t,1Hx), 6.43-7.96(m,20H,Ar-H). ^{13}C NMR: 31.5(-CH$_2$), 36.3, 41.5,161.1 (immine pyrazol-C),162.3(>C=O),173.1(immine aromatic-C), 109.21-143.20 (aromatic-33C). Anal; (%)$C_{39}H_{26}N_7O_3Br_2Cl$ Calcd; C, 56.01; H, 3.11; N,11.72; Found; C, 56.03; H, 3.12; N, 11.72.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(2-methoxy)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6k)

M.P.: 163-164 ^{0}C. Yeild: 68 % IR(KBr): 3368 (N-H),3063,2861 (C-H), 1729 (C=O), 1617 (C=N),1319 (C-N), 1244, 1109(C-O-C), 779(C-Cl), 578(C-Br). ^{1}H NMR(CDCl$_3$):2.13(d,1H,=N-NH), 3.63(s,2H,-CH$_2$), 3.07(d,1Ha), 3.46(d,1Hb), 6.53(t,1Hx), 6.43-7.96 (m,20H,Ar-H), 3.83(s,3H,-OCH$_3$).^{13}C NMR : 31.5(-CH$_2$),36.4, 41.5,161.1(immine pyrazol-C),162.0(>C=O), 173.1 (immine aromatic-C),58.2(-OCH$_3$), 109.21-143.20(aromatic-33C). Anal; (%) $C_{40}H_{29}N_6O_2Br_2Cl$ Calcd; C, 58.50; H, 3.53; N,10.23; Found; C, 58.51; H, 3.54; N, 10.25.

Spectral data of 2-[3-(6-chloro-2-phenyl) quinolin-3-yl] methyl-3–[5-(4-methoxy)phenyl-1-phenyl-4,5-dihydro-1H-pyrazol-3-ylamino]-6,8-dibromoquinazolin-4(3H)-one(6l)

M.P.:170-171 ^{0}C. Yeild: 72 % IR (KBr): 3371(N-H), 3063, 2861 (C-H), 1728(C=O), 1616(C=N), 1317 (C-N), 1242,1108 (C-O-C), 778(C-Cl), 577(C-Br).^{1}H NMR(CDCl$_3$):2.13(d,1H,=N-NH) , 3.63(s,2H,-CH$_2$), 3.06(d,1Ha), 3.47(d,1Hb),6.53(t,1Hx), 6.43-7.96(m,20H,Ar-H), 3.81(s,3H,-OCH$_3$). ^{13}C NMR : 31.5(-CH$_2$), 36.5,41.6,161.3(immine pyrazol-C),162.1(>C=O), 173.2 (immine aromatic-C),58.1(-OCH$_3$),109.21-143.20(aromatic-33C). Anal; (%)$C_{40}H_{29}N_6O_2Br_2Cl$ Calcd; C, 58.50; H, 3.53; N,10.23; Found; C, 58.52; H, 3.55; N, 10.24.

RESULT AND DISCUSSION

The title compound 6,8-dibromoquinazolin-4(3H) one incorporating pyrazoline and quinoline moieties 6a-l were synthesized and structure was confirmed by the spectral results. The IR spectra showing strong stretching vibration at 1729 and 1646 cm^{-1} indicates the presence of C=O group of quinazolinone and acetamide respectively. This was further confirming by ^1H NMR spectra which showed singlet at δ 2.73 ppm equivalent to three protons of acetamide group(4). The acrylamide 5a-l which showed CH=CH stretching at1578 cm^{-1} in IR spectrum while ^1H NMR spectra showed doublet of these protons at δ 6.81 and δ 8.61 ppm with coupling constant J = 16.0-16.6 Hz. The IR spectra of compounds 6a-l showed C=O and C=N stretching of quinazolinone at 1725 and 1616 cm^{-1} respectively. The ^1H NMR spectra of compounds 6a-l indicates that the $-CH_2$ protons of the pyrazoline ring resonated as a pair of doublet of doublets (H_a and H_b) because of geminal and vicinal coupling. The CH proton appeared as a doublet of doublet (Hx) because of vicinal coupling with the two magnetically nonequivalent protons of methylene group at C-4 of pyrazoline ring. The Ha proton which is cis to Hx resonates up field in the range δ 3.01-3.08 ppm as a doublet of doublet while Hb, the other proton which is trans to Hx resonates downfield in the range of δ 3.45-3.51 ppm as a doublet of doublet. The Hx proton which is vicinal to two methylene protons (Ha and Hb) resonates as a doublet of doublet in the range of δ 6.45-6.53 ppm. In ^{13}C NMR spectra, signals at δ 36.4 ppm, δ 41.1 ppm and δ 161.3 ppm confirms the presence of CH_2, CH and C=N of pyrazoline ring respectively, whereas C=O and C=N signals of quinazolinone ring are appear at around δ 162.2 and δ 173.1 ppm respectively.

ANTIMICROBIAL ACTIVITY

The in vitro antimicrobial activity of compounds 6a-l was carried out by cup-plate method (Barry 1976). Antibacterial activity was screened against two gram positive and two gram negative bacteria by measuring the zone of inhibition on agar plates at two different concentrations 100 and 50 µg/ml, penicillin-G were used as a standard, whereas antifungal activity was tested by measuring the zone of inhibition on agar plates with two fungal species at two different concentrations 20 and 10 µg/ml, fluconazole were used as a standard. In vitro screening results of synthesized compounds mentioned in table 1 and table 2.

Table: 1 Anti-bacterial activity of compound 6a-l

Compd	R_1	Zone of inhibition in (mm)											
		S. aureus ATCC9144			***B. subtilis*** ATCC6633			**E.coli** ATCC25922			**P.aeruginosa** ATCC9027		
		C_H	C_L	Pot %	C_H	C_L	Pot %	C_H	C_L	Pot %	C_H	C_L	Pot %
6a	H	14	12	51.09	15	12	52.44	14	11	54.16	14	11	54.16
6b	2-Cl	19	16	69.92	20	17	73.58	16	14	57.41	16	13	59.98
6c	3-Cl	18	15	66.43	19	17	68.41	15	13	54.16	15	13	54.16
6d	4-Cl	20	18	72.52	21	19	76.90	16	14	57.41	16	13	59.98
6e	2-OH	13	11	49.15	15	12	52.44	13	11	49.15	15	12	52.44
6f	3-OH	12	10	46.40	14	12	51.09	15	12	52.44	15	13	54.16
6g	4-OH	15	12	52.44	16	14	57.41	14	11	54.16	16	14	57.41
6h	2-NO_2	14	11	54.16	16	14	57.41	19	17	68.41	20	17	73.58
6i	3-NO_2	15	12	52.44	15	13	54.16	18	16	64.52	19	16	69.92
6j	4-NO_2	15	13	54.16	16	13	59.8	20	18	72.52	21	18	77.45
6k	2-OCH_3	14	12	51.09	15	13	54.16	15	13	54.16	15	13	54.16
6l	4-OCH_3	15	12	52.44	16	14	57.41	16	14	57.41	16	13	59.98
Penicillin-G		27	22	100	27	22	100	27	22	100	27	22	100

C_H Zone of inhibition at concentration 100 µg/ml, C_L Zone of inhibition at concentration 50 µg/ml, potency of compound(%) as compared to penicillin-G.

Table: 2 Antifungal activity of compound 6a-l

Compd No.	R_1	Zone of inhibition in (mm)					
		C.albicans ATCC 10231			A.niger ATCC 6275		
		C_H	C_L	Pot %	C_H	C_L	Pot %
6a	H	19	16	76.10	20	16	80.48
6b	2-Cl	13	11	52.86	13	11	52.86
6c	3-Cl	13	11	52.86	14	12	56.03
6d	4-Cl	14	12	56.03	14	12	56.03
6e	2-OH	13	11	52.86	13	11	52.86
6f	3-OH	14	12	56.03	14	12	56.03
6g	4-OH	15	13	59.36	15	13	59.36
6h	2-NO_2	12	10	49.89	13	11	52.86
6i	3-NO_2	13	11	52.86	14	12	56.03
6j	4-NO_2	14	12	56.03	15	13	59.36
6k	2-OCH_3	16	13	65.57	17	14	68.92
6l	4-OCH_3	17	15	66.67	18	16	70.63
Fluconazole		25	21	100	25	21	100

C_H Zone of inhibition at concentration 20 µg/ml, C_L Zone of inhibition at

concentration 10 µg/ml, potency of compound(%) as compared to fluconazole.

CONCLUSION

The title compound 6, 8-dibromoquinazolin-4(3H) ones derivatives 6a-l were synthesized by well organized method. The active pharmacophore pyrazoline and quinoline present in a newly synthesized compounds possessed good antibacterial and antifungal activity in vitro. The chloro group in phenyl nucleus on ortho, meta and para position showed very good activity against gram positive bacteria while nitro analogues displayed very good activity against gram negative bacteria compared to standard. More over phenyl nucleus, ortho and para methoxy substituted phenyl compounds showed very good antifungal activity. From these work, we were able to identify a few active molecules which are capable to inhibiting the growth of some bacteria and fungus species in vitro.

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