***Experimental section***

***General procedure for synthesis of N-substituted-quinazolin-4-one derivatives 3-5.***

A mixture of quinazolinone derivative **2** (4.2 gm, 10 mmol) and alkyl halides, namely 2-chloro-*N*-(4-nitrophenyl)acetamide, 2-chloro*-N*-cyclohexyl acetamide and/or ethyl chloroacetate (10 mmol) in dry acetone (20 mL) and anhydrous potassium carbonate (10 mmol) was heated under reflux for 24-30 h or exposed to MW in the presence of anhydrous potassium carbonate (10 mmol) with few drops of DMF at 700 W for 4-8 min. After cooling, the reaction mixture was treated with water and the deposited solid was filtered off, dried, and recrystallized from the appropriate solvent to give **3-5**, respectively.

***2-(6-Iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)-N-(4-nitrophenyl)acetamide 3.*** Recrystallized from ethanol as white crystals; mp 250-252°C. Anal. Calcd. for C27H33IN4O4 (604.49): C, 53.65; H, 5.50; I, 20.99; N, 9.27. Found: C, 53.47; H, 5.48; I, 21.02; N, 9.32.IR (υ/cm-1): 3352 (NH), 2919, 2850 (CH aliphatic), 1691 (C=O). 1H-NMR (400 MHz, DMSO-d6) δ (ppm): 0.83 (t, 3H), 1.28 (m, 16H), 1.75 (m, 2H), 2.78 (t, 2H), 5.02 (s, 2H, CH2), 7.44 (d, 2H, ArH, *J* = 8.56 Hz), 7.82 (d, 2H, ArH, *J* = 9.08 Hz), 8.10 (d, 1H, ArH, *J* = 6.84 Hz), 8.23 (d, 1H, ArH, *J* = 9.12 Hz), 8.36 (s, 1H, ArH), 11.08 (br.s, 1H, CONH, exchangeable with D2O).

***N-Cyclohexyl-2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetamide 4*.** Recrystallized from ethanol as white crystals; mp 178-180°C. Anal. Calcd. for C27H40IN3O2 (565.54): C, 57.34; H, 7.13; I, 22.44; N, 7.43. Found: C, 57.37; H, 7.22; I, 22.19; N, 7.40. IR (υ/cm-1): 3295 (NH), 2920, 2851 (CHaliphatic), 1692 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.85 (t, 3H), 1.24 (m, 26H), 1.74 (m, 2H), 2.65 (t, 2H), 3.50 (m, 1H, CH-NH), 4.71 (s, 2H, CH2), 7.41 (d, 2H, ArH, *J* = 8.7 Hz), 8.06 (d, 1H, ArH, *J* = 7.5 Hz), 8.18 (br.s, 1H, CONH, exchangeable with D2O), 8.35 (s, 1H, ArH).

***Ethyl 2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetate 5.*** Recrystallized from light petroleum ether (60-80°C) as white crystals; mp 78-80°C. Anal. Calcd. for C23H33IN2O3 (512.43): C, 53.91; H, 6.49; I, 24.77; N, 5.47. Found: C, 53.87; H, 6.52; I, 24.61; N, 5.34. IR (υ/cm-1): 2918, 2849 (CHaliphatic), 1719 (C=Oester), 1690 (C=Oamide). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.89 (t, 3H), 1.27 (t, 3H, CH3–CH2), 1.30-1.57 (m, 16H), 1.81 (m, 2H), 2.67 (t, 2H), 4.25 (q, 2H, CH3–CH2), 4.85 (s, 2H, CH2), 7.41 (d, 1H, ArH, *J* = 8.7 Hz ), 7.98 (d, 1H, ArH, *J* = 6.3 Hz ), 8.57 (s, 1H, ArH). 13C-NMR (400 MHz, DMSO) δ (ppm): 14.38, 14.42, 22.57, 26.19, 28.90, 29.21, 29.26, 29.41, 29.48, 31.77, 34.45, 45.55, 61.82, 91.79, 121.68, 129.54, 134.81, 143.44, 146.60, 158.13, 160.36, 168.36.

***Synthesis of 2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetohydrazide 6.***

A mixture of quinazolinone derivative **5** (5.1 gm, 10 mmol) and hydrazine hydrate (5 ml, 10 mmol) in absolute ethanol (40 ml) was heated under reflux for 1h or exposed to MW at 600 W for 6 min. After cooling, the formed solidwas filtered off, washed with ethanol and recrystallized from dioxane to give the hydrazidederivative **6** as white crystals, mp 196-198°C. Anal. calcd. for C21H31IN4O2 (498.41): C, 50.61; H, 6.27; I, 25.46; N, 11.24. Found: C, 50.54; H, 6.33; I, 25.36; N, 11.27.IR (υ/cm-1): 3323, 3283, 3220 (NH2, NH), 2917, 2849 (CH aliphatic), 1679, 1657 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.85 (t, 3H), 1.32 (m, 16H), 1.73 (m, 2H), 2.70 (t, 2H), 4.28 (br.s, 2H, NH2, exchangeable with D2O), 4.70 (s, 2H, CH2), 7.40 (d, 1H, ArH, *J* = 8.7 Hz), 8.06 (d, 1H, ArH, *J* = 6.9 Hz), 8.35 (s, 1H, ArH), 9.39 (br.s, 1H, NH, exchangeable with D2O). 13C-NMR (400 MHz, DMSO) δ (ppm): 14.42, 22.57, 26.18, 26.24, 29.02, 29.20, 29.32, 29.48, 31.76, 34.16, 34.41, 44.78, 91.46, 122.04, 129.52, 134.52, 134.83, 142.74, 143.20, 146.69, 158.75, 160.45, 166.58.

***General procedure f synthesis of pyrazolyl quinazolinones 7 and 8***

A mixture of hydrazide derivative **6**  (4.9 gm, 10 mmol) and β-diketones, namely benzoyl acetone and/or acetyl acetone (10 mmol) in dioxane (20 ml) was heated under reflux for 10 h or exposed to MW at 500-600 W for 6-7 min. After cooling, the solid product was collected, dried and recrystallized from the appropriate solvent to give **7** and **8**, respectively.

***6-Iodo-3-(2-(3-methyl-5-phenyl-1H-pyrazol-1-yl)-2-oxoethyl)-2-undecylquinazolin-4(3H)-one 7.*** Recrystallized from ethanol as pale yellow crystals; mp 158-160°C. Anal. Calcd. for C31H37IN4O2 (624.57): C, 59.62; H, 5.97; I, 20.32; N, 8.97. Found: C, 59.54; H, 5.92; I, 20.33; N, 8.68. IR (υ/cm-1): 2921, 2851 (CHaliphatic), 1673 (C=O). 1H-NMR (400 MHz, DMSO-d6) δ (ppm): 0.86 (t, 3H), 1.26 (m, 16H), 1.69 (m, 2H), 2.10 (t, 2H), 3.12 (s, 3H, CH3), 5.22 (s, 2H, CH2), 7.01 (s, 1H), 7.20-7.44 (m, 6H, ArH), 8.06 (d, 1H, ArH, *J* = 6.52 Hz), 8.33 (s, 1H, ArH). 13C-NMR (400 MHz, DMSO) δ (ppm): 14.43, 16.26, 22.58, 25.96, 26.23, 29.00, 29.22, 29.25, 29.40, 29.49, 31.78, 46.06, 91.52, 92.74, 121.69, 121.80, 124.98, 127.60, 128.32, 129.29, 129.51, 134.84, 143.25, 143.80, 146.65, 156.35, 158.62, 160.35, 163.35.

***3-(2-(3,5-Dimethyl-1H-pyrazol-1-yl)-2-oxoethyl)-6-iodo-2-undecylquinazolin-4(3H)-one 8.*** Recrystallized from Light petroleum ether (60-800C) as yellow crystals; mp 96-98°C. Anal. Calcd. for C26H35IN4O2 (562.50): C, 55.52; H, 6.27; I, 22.56; N, 9.96. Found: C, 55.50; H, 6.11; I, 22.44; N, 9.88. IR (υ/cm-1): 2917, 2850 (CHaliphatic), 1716, 1674 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.85 (t, 3H), 1.23-1.70 (m, 16H), 1.75 (m, 2H), 2.78 (t, 2H), 2.26 (s, 3H, CH3), 2.49 (s, 3H, CH3), 5.62 (s, 2H, CH2), 6.29 (s, 1Holefinic), 7.40 (d, 1H, ArH), 8.09 (d, 1H, ArH, *J* = 6.3 Hz), 8.36 (s, 1H, ArH).

***General procedure for synthesis of quinazolinone derivatives 10 and 11.***

A mixture of hydrazide derivative **6** (4.9 gm, 10 mmol) and phthalic anhydride or (*Z*)-4-((*E*)-3-phenylallylidene)isochromane-1,3-dione (10 mmol) in dioxane (30 ml) was heated under reflux for 5-7 h or exposed to MW irradiation at 700 W for 5-6 min. The separated solid was filtered off, dried and recrystallized from the appropriate solvent to give **10** and **11**, respectively.

***N-(1,3-Dioxoisoindolin-2-yl)-2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetamide 10.*** Recrystallized from ethanol/dioxane as white crystals; mp 228-230°C. Anal. Calcd. for C29H33IN4O4 (628.51): C, 55.42; H, 5.29; I, 20.19; N, 8.91. Found: C, 55.39; H, 5.31; I, 20.21; N, 9.03. IR (υ/cm-1): 3240 (NH), 2917, 2850 (CH aliphatic), 1740, 1715 (C=Ophthalimide), 1664 (C=Oamide). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.88 (t, 3H), 1.26 (m, 16H), 1.87 (m, 2H), 2.93 (t, 2H), 5.03 (s, 2H, CH2), 7.40 (d, 1H, ArH quinazolinone, *J* = 8.7 Hz), 7.75-7.88 (m, 4Hphthalimide), 7.98 (d, 1H, ArH quinazolinone, *J* = 6.6 Hz), 8.55 (s, 1H, ArH), 9.01 (br.s, 1H, NH, exchangeable with D2O). 13C-NMR (400 MHz, DMSO) δ (ppm): 14.42, 22.57, 25.96, 28.98, 29.21, 29.47, 31.17, 34.22, 44.37, 91.74, 121.86, 124.25, 129.59, 129.89, 134.99, 135.78, 143.42, 146.60, 158.32, 160.41, 165.26, 167.13.

***N-((Z)-1,3-dioxo-4-((E)-3-phenylallylidene)-3,4-dihydroisoquinolin-2(1H)-yl)-2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetamide 11.*** Recrystallized from ethanol/dioxane as orange crystals; mp 252-254°C. Anal. Calcd. for C39H41IN4O4 (756.69): C, 61.91; H, 5.46; I, 16.77; N, 7.40. Found: C, 61.87; H, 5.33; I, 16.65; N, 7.39. IR (υ/cm-1): 3229 (NH), 2920, 2850 (CH aliphatic), 1700, 1684 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.80 (t, 3H), 1.16-1.50 (m, 16H), 1.82 (m, 2H), 2.87 (t, 2H), 5.10 (s, 2H, CH2), 7.39-8.56 (m, 7H, ArH + 3Holefinic), 11.09 (br.s, 1H, NH, exchangeable with D2O). 13C-NMR (400 MHz, DMSO) δ (ppm): 14.39, 22.58, 25.98, 29.10, 29.25, 29.36, 29.53, 29.57, 31.77, 34.14, 44.17, 91.59, 120.02, 121.88, 123.14, 123.48, 126.12, 128.35, 128.79, 129.06, 129.54, 130.64, 134.67, 134.77, 135.05, 136.31, 143.25, 145.76, 146.62, 148.44, 158.39, 160.38, 161.69, 161.88, 166.45.

***General procedure for synthesis of quinazolinone derivatives 13 and 15.***

A mixture of hydrazide derivative **6** (4.9 gm, 10 mmol) and activated nitriles namely, 2-((1,3-diphenyl-1H-pyrazol-4-yl)methylene)malononitrile and/or ethoxymethylenemalononitrile (10 mmol) in dioxane (30 ml) in the presence of TEA (0.5 ml) was heated under reflux for 6-7 h or exposed to MW irradiation at 800 W for 3-8 min. in the presence of TEA (0.5 ml). The separated solid was filtered off, washed with water, dried and recrystallized from the appropriate solvent to give **13** and **15**, respectively.

***N'-((1,3-Diphenyl-1H-pyrazol-4-yl)methylene)-2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetohydrazide 13***. Recrystallized from ethanol/dioxane as white crystals; mp 262-264°C. Anal. Calcd. for C37H41IN6O2 (728.68): C, 60.99; H, 5.67; I, 17.42; N, 11.53. Found: C, 61.05; H, 5.57; I, 17.38; N, 11.49. IR (υ/cm-1): 3214 (NH), 2921, 2851 (CH aliphatic), 1690, 1657 (C=O). 1H-NMR (400 MHz, DMSO-d6) δ (ppm): 0.81 (t, 3H), 1.17 (m, 16H), 1.72 (m, 2H), 2.69 (t, 2H), 5.20 (s, 2H, CH2), 7.41-8.37 (m, 13Harom. + 1Holefinic), 9.04 (s, 1H, C5Hpyrazole), 11.66 (br.s, 1H, NH, exchangeable with D2O).

***2-(6-Iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)-N'-(2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetyl)acetohydrazide 15.*** Recrystallized from ethanol/dioxane as white crystals; mp > 300°C. Anal. Calcd. for C42H58I2N6O4 (964.77): C, 52.29; H, 6.06; I, 26.31; N, 8.71. Found: C, 52.11; H, 6.13; I, 26.28; N, 8.69. IR (υ/cm-1): 3215 (NH), 2920, 2851 (CH aliphatic), 1703 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.84 (t, 6H), 1.06-1.28 (m, 32H), 1.73 (m, 4H), 2.70 (t, 4H), 4.87 (s, 4H, 2CH2), 7.41 (d, 2H, ArH, *J* = 8.4 Hz), 8.08 (d, 2H, ArH, *J* = 6.3 Hz), 8.35 (s, 2H, ArH), 10.36 (br.s, 2H, 2CONH, exchangeable with D2O).

***General procedure for synthesis of quinazolinone derivatives 16 and 17.***

A mixture of hydrazide derivative **6**  (4.9 gm, 10 mmol), isatinand/or *p*-chloro benzaldehyde (10 mmol) in dioxane (30 ml) was heated under reflux for 10 h or exposed to MW irradiation at 700 W for 5-6 min. The separated solid was filtered off, dried and recrystallized from the appropriate solvent to give **16** and **17**, respectively.

 ***(Z)-2-(6-Iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)-N'-(2-oxoindolin-3ylidene)acetohydrazide 16.***  Recrystallized from dioxane as yellow crystals; mp 258-260°C. Anal. Calcd. for C29H34IN5O3 (627.53): C, 55.51; H, 5.46; I, 20.22; N, 11.16. Found: C, 55.42; H, 5.36; I, 20.19; N, 11.09. IR (υ/cm-1): 3176 (NH), 2919, 2850 (CH aliphatic), 1695, 1688 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.83 (t, 3H), 1.37 (m, 16H), 1.74 (m, 2H), 2.77 (t, 2H), 5.40 (s, 2H, CH2), 6.98-7.46 (m, 4Hoxoindol), 7.6 (d, 1H, ArH, *J* = 8.4 Hz.), 8.09 (d, 1H, ArH, *J* = 6.6 Hz), 8.36 (s, 1H, ArH), 11.29 (br.s, 1H, NH, exchangeable with D2O), 12.8 (br.s, 1H, NHoxoindol, exchangeable with D2O). ***N'-(4-chlorobenzylidene)-2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetohydrazide 17.***  Recrystallized from ethanol as white crystals; mp 132-134°C. Anal. Calcd. for C28H34ClIN4O2 (620.96): C, 54.16; H, 5.52; Cl, 5.71; I, 20.44; N, 9.02. Found: C, 54.22; H, 5.43; Cl, 5.66; I, 20.38; N, 9.13. IR (υ/cm-1): 3214 (NH), 2918, 2850 (CH aliphatic), 1695, 1663 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.83 (t, 3H), 1.19 (m, 16H), 1.75 (m, 2H), 2.72 (t, 2H), 5.30 (s, 2H, CH2), 7.41-8.36 (m, 7Harom. + 1Holefinic), 11.85 (br.s, 1H, NH, exchangeable with D2O).

***Synthesis of 2-(2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetyl)-N-phenylhydrazine-1-carbothioamide 19.*** A mixture of hydrazide derivative **6** (4.9 gm, 10 mmol) and phenylisothiocyanate (1.3 ml, 10 mmol) in pyridine (30 ml) was heated under reflux for 5 h or exposed to MW irradiation at 800 W for 9 min. The separated solid was filtered off, dried and recrystallized from ethanol to give **19** as white crystals; mp 218-220°C. Anal. Calcd. for C28H36IN5O2S (633.59): C, 53.08; H, 5.73; I, 20.03; N, 11.05; S, 5.06. Found: C, 53.00; H, 5.65; I, 20.14; N, 11.12; S, 5.10. IR (υ/cm-1): 3307 (NH), 2921, 2850 (CH aliphatic), 1666 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.84 (t, 3H), 1.32 (m, 16H), 1.72 (m, 2H), 2.74 (t, 2H), 4.92 (s, 2H, CH2), 7.17-8.35 (m, 8Harom.), 9.60 (br.s, 1H, NHC6H5, exchangeable with D2O), 9.80 (br.s, 1H, NHCS, exchangeable with D2O), 10.49 (br.s, 1H, NHCO, exchangeable with D2O).

 ***2-Chloro-N'-(2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetyl)acetohydrazide 20.*** A mixture of hydrazide derivative **6** (4.9 gm, 10 mmol) and chloroacetyl chloride (1.1 ml, 10 mmol) in DMF (30 ml) was stirred at room temperature for 1 h. The reaction mixture was poured on cold water, filtered, dried and recrystallized from dioxane to give **20** as white crystals; mp 218-220°c yield 80%. Anal. Calcd. for C23H32ClIN4O3 (574.89): C, 48.05; H, 5.61; Cl, 6.17; I, 22.07; N, 9.75. Found: C, 48.13; H, 5.54; Cl, 6.14; I, 22.01; N, 9.66. IR (υ/cm-1): 3287 (NH), 2917, 2850 (CH aliphatic), 1679, 1657 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.85 (t, 3H), 1.24 (m, 16H), 1.73 (m, 2H), 2.71 (t, 2H), 4.70 (s, 2H, CH2Cl), 4.80 (s, 2H, NCH2), 7.39 (d, 1H, ArH, *J* = 8.7 Hz.), 8.06 (d, 1H, ArH, *J* = 6.3 Hz), 8.34 (s, 1H, ArH), 9.39 (br.s, 1H, NH, exchangeable with D2O), 10.40 (br.s, 1H, NH, exchangeable with D2O).

***Synthesis of Ethyl (E)-N-(2-(6-iodo-4-oxo-2-undecylquinazolin-3(4H)-yl)acetyl) formohydrazonate 21.*** A mixture of hydrazide derivative **6** (4.9 gm, 10 mmol) and triethylorthoformate (10 ml) was heated under reflux for 10 h or exposed to MW irradiation at 800 W for 4 min. The excess solvent was removed then the separated solid was filtered off, dried and recrystallized from dioxane to give **21** as white crystals; mp 182-184°C. Anal. Calcd. for C24H35IN4O3 (554.47): C, 51.99; H, 6.36; I, 22.89; N, 10.10. Found: C, 51.82; H, 6.23; I, 22.77; N, 10.14. IR (υ/cm-1): 3227 (NH), 2950- 2850 (CH aliphatic), 1696, 1668 (C=O). 1H-NMR (300 MHz, DMSO-d6) δ (ppm): 0.85 (t, 3H), 1.23-1.33 (m, 16Haliph. + 3HOCH2CH3), 1.71 (m, 2H), 2.67 (t, 2H), 4.18 (q, 2H,OCH2CH3), for anti-isomer [4.86 (s, 2H, CH2), 6.92 (s, 1H, CH=), 10.45 (br.s, 1H, NH, exchangeable with D2O)], for syn-isomer [5.09 (s, 2H, CH2), 6.93 (s, 1H, CH=), 10.77 (br.s, 1H, NH, exchangeable with D2O)], 7.41 (d, 1H, ArH, *J* = 8.4 Hz.), 8.07 (d, 1H, ArH, *J* = 6.6 Hz), 8.34 (s, 1H, ArH). 13C-NMR (400 MHz, DMSO) δ (ppm): 14.42, 14.54, 15.79, 15.98, 22.57, 26.09, 26.28, 28.94, 28.97, 29.20, 29.24, 29.28, 29.42, 29.47, 31.76, 34.36, 34.52, 45.08, 45.16, 67.65, 91.51, 121.89, 129.53, 134.85, 143.26, 144.22, 145.98, 146.74, 158.80, 158.88, 160.43, 163.41, 167.47.