Experimental

5. EXPERIMENTAL

5.1 Molecular Modeling Studies

Docking studies were performed with Glide 5.9 (Schrödinger 2013-1). Glide is intended for screening of probable ligands based on binding mode and affinity for a given receptor molecule. It performs grid-based ligand docking and searches for favorable interactions between ligand molecules and a receptor molecule, typically a protein. For docking purpose Glide offers three different levels of docking precision: HTVS (high-throughput virtual screening), SP (standard precision), and XP (extra precision).[141] The 3D structures of ligand molecules were built within Maestro using the Build module and a single low energy conformation search was carried out for all molecules using OPLS_2005 force field at physiological pH condition using LigPrep[142] module of Schrödinger, here all the parameters were kept to standard value. The 3D crystallographic structures for Protein Tyrosine Phosphatase 1B (**PTP1B**) were obtained from RCSB Protein Data Bank (PDB Code: 1XBO) prepared for docking with protein preparation wizard[143,144] within Schrödinger2013-1. Docking calculations for minimized 3D ligand structures were performed in extra precision (XP) mode with the active sites of receptor structures.

5.2 Chemical Studies

All the reagents and solvents required for syntheses were purified by general laboratory techniques before use. Compounds were purified by passing them through silica gel H purifying column, using mixture of Ethyl acetate and *n*-hexane as eluent. Melting points were determined using a Veego make silicon oil bath-type melting point apparatus and are uncorrected. Purity of the compounds and completion of reactions were monitored by thin layer chromatography (TLC) on silica gel GF plates, visualizing with ultraviolet light or iodine vapors. The yields reported here are un-optimized. The IR spectra were recorded using KBr disc method on a Bruker FT-IR spectrophotometer. The H-NMR spectra were recorded in either $CDCl_3$ or DMSO-d_6. Anhydrous sodium sulphate was used for drying of extracts. All proton magnetic resonance (1H-NMR) values were considered on the basis of chemical shift (δ) values.

5.2.1 General procedure of synthesis of Aryl Isothiocyanate (III-IV)

5.2.1.1 Synthsis of aryl dithiocarbamate (II)

Aryl amine (I) (1 equivalent) was dissolved in dry THF (10 volume equivalents) and cooled to 5-10 ˚C. Triethylamine (4 equivalents) was added to it followed by carbon disulfide (4 equivalents), dropwise with stirring for an hour. Stirring was continued for 10-12 hrs at RT and the entire reaction was carried out under nitrogen atmosphere. The solid that precipitated out during the reaction was filtered, washed with hexane (3 × 100 mL) and dried under vacuum to afford the title compound as a yellowish solid. The compound (**II**) obtained was used for next step without further purification.

5.2.1.2 Synthesis of arylisothiocyanate (III-IV)

Aryl dithiocarbamate salt (**II**) (1 equivalent) was suspended in acetonitrile (10 volume equivalents) and cooled to 5-10 ˚C. Triethylamine (2 equivalents) was added to it with stirring followed by iodine (1 equivalent) portion wise, over a period of 30min. During this period a light yellow colored solid (sulfur) precipitated out. The sulfur so precipitated was filtered out and the solvent was removed by rota evaporator. The concentrated slurry was extracted with hexane (4 x 250 mL). The hexane layer was washed with 0.1N HCl (4 x 100 mL). The combined organic layer was dried over anhydrous Na_2SO_4 and the solvent removed to get the desired compound (**III-IV**) as a light yellow liquid.

5.3 Synthesis of Phenyl isothiocyanate (III)

The title compound (**III**) was synthesized as per the method described in Section **5.2.1** and **5.2.2** taking aniline (25 gm, 0.27 mol). The crude product so obtained was used for next step without further purification (25 g, 85%), **b.p.** 218-220°C.

Anal

TLC : R_f 0.5 (Hexane : Ethylacetate (9 : 1)

IR (cm^{-1}) : 3064, 2164, 2063, 1591, 1489, 1474, 1451, 1070, 927, 905, 749, 684

5.4 Synthesis of Benzyl isothiocyanate (IV)

The title compound **(IV)** was synthesized as per the method described in Section **5.2.1** and **5.2.2** using benzylamine (25 gm, 0.23 mol). The crude product so obtained was used for next step without further purification (28.2 g, 90%), **b.p.** 242-244°C.

Anal

TLC : R_f 0.8 (Hexane : Ethylacetate (9 : 1)

IR (cm^{-1}) : 3063, 2924, 2858, 2088, 1605, 1531, 1494, 1447, 1199, 698

5.5 Synthesis of substituted 2-imino-thiazolidin-4-one (A1-A53).

Method-I:

To a stirred solution of amine (1 equivalents) in methanol (10 volume equivalents), aryl isothiocyanate (1 equivalents) is added portion wise. The mixture became slightly warm was stirred at room temperature for 4 hrs before ethyl chloroacetate (1 equivalents) followed by pyridine (1.5 equivalents) was added. Stirring of the reaction mixture was continued for 16-24 h. The resulting fine suspension was diluted with 1N aq HCl (100 mL) and extracted with diethyl ether (150 mL). The combined organic extract was dried over Na_2SO_4, filtered, and concentrated. The solid obtained was washed with hexane and dried under high vacuum to give **A1-A53** as solid.

Method-II:

To a stirred solution of aryl isothiocyanate (1 equivalent) in dichloromethane (10 volume equivalents), amine (1 equivalent) was added portion wise at 20°C. The solution was stirred for 15 min. The solution cooled to 0°C before bromoacetyl bromide (1 equivalent) was added, carefully maintaining the temperature below 5°C. The reaction mixture stirred for 15 min at 0°C before pyridine (1.5 equivalents) was added, continuing the stirring for a further 16-24 h at room temperature. Later was water was added and aqueous layer extracted with dichloromethane successively. The combined organic extracts dried over Na_2SO_4 and solvent removed under reduced pressure to afford **A1-A53** as a solid.

Table-18: Physical and IR data of intermediates **A1** to **A53**

S. No	Code	Amine (aryl isothiocyanate)	% yield (Rf)*	IR (KBr Cm^{-1})	m.p. (°C)
1	A1[b]	2-methoxyaniline (c)	68.26 (0.69)	1723(C=O),1634(C=N),1591(C=C)	100-105
2	A2[b]	2-methoxyaniline (d)	69.4 (0.8)	1772(C=O),1619(C=N),1540(C=C)	88-89
3	A3[a]	4- methoxyaniline (c)	69.36 (0.68)	1726(C=O),1625(C=N),1590(C=C)	96-100
4	A4[a]	4- methoxyaniline (d)	84.69 (0.5)	1723(C=O),1628(C=N),1594(C=C)	160-164
5	A5[a]	1-Naphthylamine (c)	73.44 (0.67)	1641(C=O),1599(C=N),1557(C=C)	218-222
6	A6[a]	1-Naphthylamine (d)	77.7 (0.77)	1774(C=O),1622(C=N),1530(C=C)	121-125
7	A7[a]	4-Fluoroaniline (c)	66.62 (0.7)	1724(C=O),1632(C=N),1496(C=C)	206-210
8	A8[a]	4-Fluoroaniline (d)	69.4 (0.7)	1772(C=O), 1619(C=N),1540(C=C)	88-89
9	A9[a]	4-Methylaniline (c)	68.66 (0.58)	1726(C=O),1625(C=N),1589(C=C)	110-114
10	A10[a]	4-Methylaniline (d)	69.4 (0.67)	1724(C=O),1627(C=N),1585(C=C)	116-120
11	A11[a]	3-Nitroaniline (c)	64.86 (0.81)	1728(C=O),1632(C=N),1606(C=C)	108-110
12	A12[a]	3-Nitroaniline (d)	61.11 (0.72)	1722(C=O),1627(C=N),1518(C=C)	67-70
13	A13[a]	3-Chloroaniline (c)	64.35 (0.79)	1719(C=O),1652(C=N),1585(C=C)	108-112
14	A14[a]	3-Chloroaniline (d)	61.85 (0.69)	1724(C=O),1638(C=N),1582(C=C)	70-74
15	A15[a]	3-Bromoaniline (c)	65.14 (0.77)	1724(C=O),1644(C=N),1585(C=C)	147-150
16	A16[a]	3-Bromoaniline (d)	71.57 (0.74)	1776(C=O),1612(C=N),1582(C=C)	96-100
17	A17[a]	Cyclohexylamine (c)	64.32 (0.76)	1718(C=O),1640(C=N)	107-111
18	A18[a]	Cyclohexylamine (d)	75.6 (0.73)	1711(C=O),1639(C=N), 1492(C=C)	95-98
19	A19[a]	Benzylamine (c)	69.66 (0.61)	1717 (C=O),1641(C=N),1589(C=C)	64-68
20	A20[a]	Phenylethylamine (c)	68.45 (0.77)	1720(C=O),1641(C=N),1590(C=C)	120-125
21	A21[a]	2-(4-Morpholinyl)ethanamine (c)	67.22 (0.51)	1724(C=O),1633(C=N),1587(C=C)	246-250
22	A22[a]	2-(4-Morpholinyl)ethanamine (d)	68.90 (0.66)	1726(C=O),1635(C=N),1584(C=C)	240-244
23	A23[a]	3-amino pyridine (c)	69.82 (0.32)	1726(C=O),1629(C=N),1588(C=C)	68-72
24	A24[a]	3-amino pyridine (d)	81.8 (0.68)	1723(C=O),1638(C=N), 1579(C=C)	73-75

S. No	Code	Amine (aryl isothiocyanate)	% yield (Rf)*	IR (KBr Cm^{-1})	m.p. (˚C)
25	A25[b]	*n*-Propylamine (c)	66.42 (0.8)	1727(C=O),1636(C=N),1587(C=C)	48-50
26	A27[b]	*iso*-Propylamine (c)	64.23 (0.67)	1726(C=O),1632(C=N)	114-116
27	A29[b]	Cyclopropylamine (c)	68.29 (0.64)	1731(C=O),1636(C=N)	170-172
28	A31[b]	n-Butylamine (c)	68.12 (0.84)	1721(C=O),1623(C=N),1586(C=C)	70-80
29	A33[a]	4-Methoxybenzylamine (c)	67.89 (0.8)	1712(C=O),1644(C=N),1588(C=C)	51-53
30	A34[a]	4-Methoxybenzylamine (d)	77.77 (0.75)	1772(C=O),1619(C=N),1540(C=C)	65-68
31	A35[b]	2-Chlorobenzylamine (c)	66.53 (0.86)	1727(C=O), 1644(C=N),1591(C=C)	51-53
32	A36[b]	2-Chlorobenzylamine (d)	75.43 (0.63)	1727(C=O), 1644(C=N),1591(C=C)	71-74
33	A37[b]	3-Picolylamine (c)	65.82 (0.44)	1720(C=O),1626(C=N),1586(C=C)	50-52
34	A38[b]	3-Picolylamine (d)	73.68 (0.77)	1723(C=O), 1637(C=N),1582(C=C)	57-60
35	A39[a]	2-methylphenylamine (c)	65.22 (0.68)	1724(C=O),1640(C=N),1592(C=C)	81-85
36	A40[a]	2-methylphenylamine (d)	82.05 (0.76)	1727(C=O), 1644(C=N),1591(C=C)	93-96
37	A41[a]	4-ethylphenylamine (c)	69.96 (0.75)	1723(C=O),1642(C=N),1595(C=C)	51-53
38	A42[a]	4-ethylphenylamine (d)	82.35 (0.73)	1727(C=O), 1644(C=N),1591(C=C)	77-80
39	A43[a]	(4-Amino-phenyl)-acetic acid methyl ester (c)	79.64 (0.47)	1726(C=O),1634(C=N),1595(C=C)	104-108
40	A44[a]	(4-Amino-phenyl)-acetic acid methyl ester (d)	78.23 (0.79)	1727(C=O), 1644(C=N),1591(C=C)	55-58
41	A45[a]	3-(4-Amino-phenyl)-acrylic acid methyl ester (c)	70.22 (0.69)	1723(C=O),1642(C=N),1595(C=C)	188-190
42	A46[a]	3-(4-Amino-phenyl)-acrylic acid methyl ester (d)	78.23 (0.77)	1727(C=O), 1644(C=N),1591(C=C)	55-58
43	A47[b]	3-Chlorobezylamine (c)	77.82 (0.7)	1729(C=O),1633(C=O)	145-149
44	A48[b]	3-Chlorobezylamine (d)	78.35 (0.67)	1727(C=O), 1644(C=N),1591(C=C)	163-166
45	A49[b]	4-Chlorobezylamine (c)	78.56 (0.8)	1728(C=O),1630(C=N)	157-161
46	A50[b]	4-Chlorobezylamine (d)	77.33 (0.79)	1727(C=O), 1644(C=N),1591(C=C)	165-168
47	A51[b]	4-Fluorobezylamine (c)	74.89 (0.73)	1726(C=O),1633(C=N),1597(C=C)	149-153
48	A52[b]	4-Fluorobezylamine (d)	84.35 (0.5)	1722(C=O), 1640(C=N), 1570(C=C)	163-166
49	A53[a]	3,4-Dimethoxybenzylamine (d)	71.42 (0.8)	1713(C=O),1645(C=N), 1588(C=C)	101-104

a = Method of synthesis is I, b = Method of synthesis is II, c = Phenyl isothiocyanate, d = Benzyl isothiocyanate, *Toluene: Methanol (9:1).

5.6 Synthesis of derivatives of 4-{[4-oxo-3-phenyl-2-(imino)thiazolidin-5-ylidene]methyl}benzoic acid (1-48).

5.6.1 4-{[2-((2-methoxyphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (1).

A mixture of 4-formylbenzoic acid (125.79 mg, 0.837 mmol), β-alanine (85.95 mg, 0.964 mmol), and 2-{[2-methoxyphenyl]imino}-3-phenylthiazolidin-4-one **A1** (250 mg, 0.837 mmol) in 5 mL glacial acetic acid taken in a two-necked round bottomed flask was refluxed with stirring at 120˚C for 3 h. The reaction mixture was cooled to room temperature and 25 mL of water was added. The precipitated solid was collected by vacuum filtration, washed with cold glacial acetic acid (5 mL) and distilled water (50 mL). The yellow solid **1** obtained was dried in vacuum at 60˚C for 24 h. **m.p.** 238-242 °C

Anal

TLC : Rf 0.31 (Toluene:Methanol) (9 : 1)
IR (cm^{-1}) : 3024, 1719, 1692, 1645 and 1601
^{1}H-NMR : δ 8.02-8.04 (*d*, 2H, Ar*H*), 7.81 (*s*, 1H, C*H*), 7.36-7.63 (*m*, 7H, Ar*H*), 7.10-7.19 (*m*, 2H, Ar*H*), 6.90-7.01 (*m*, 2H, Ar*H*), and 3.86 (*s*, 3H, Ar*H*)

5.6.2 4-{[3-benzyl-2-((2-methoxyphenyl)imino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (2)

The title compound **2** was synthesized as per the method described for compound **1** replacing **A1** with **A2** (250 mg, 0.80 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **2**, (280 mg, 78.87%), **m.p.** 210-214˚C.

Anal

TLC : Rf 0.51 (Hexane:Ethyl Acetate) (7:3)
IR (cm^{-1}) : 3441, 1719, 1690, 1647 and 1606
^{1}H-NMR : δ 8.10-8.12 (*d*, 2H, Ar*H*), 7.77 (*s*, 1H, C*H*), 7.64-7.66 (*d*, 2H, Ar*H*), 7.44 (*t*, 1H, Ar*H*), 7.04-7.31 (*m*, 8H, Ar*H*), 4.61 (*s*, 2H, C*H*$_2$), and 3.82 (*s*, 3H, C*H*$_3$).

5.6.3 4-{[2-((4-methoxyphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (3)

The title compound **3** was synthesized as per the method described for compound 1 by taking **A3** (250 mg, 0.84 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **3**, (300 mg, 83.17%), **m.p.** >270°C.

Anal

TLC : Rf 0.22 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3008, 1726, 1625 and 1590
^{1}H-NMR : δ 8.03-8.04 (*d*, 2H, Ar*H*), 7.81 (*s*, 2H, C*H*), 7.35-7.63 (*m*, 6H, Ar*H*), 7.16 (*t*, 1H, Ar*H*), 7.06-7.08 (*d*, 2H, Ar*H*), 6.88-6.95 (*m*, 2H, Ar*H*) and 3.85 (*s*, 3H, Ar*H*)

5.6.4 4-{[3-benzyl-2-((4-methoxyphenyl)imino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (4)

The title compound **4** was synthesized as per the method described for compound 1 by taking **A4** (250 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **4**, (280 mg, 78.87%), **m.p.** 256-260°C.

Anal

TLC : Rf 0.51 (Hexane: Ethyl Acetate)(7:3)
IR (cm^{-1}) : 3000, 1692, 1650 and 1606
^{1}H-NMR : δ 8.07-8.10 (*m*, 2H, Ar*H*), 7.78 (*s,* 1H, C*H*), 7.65-7.69 (*m*, 2H, Ar*H*), 7.21-7.31 (*m*, 7H, Ar*H*), 7.00-7.04 (*t*, 2H, Ar*H*), 4.62 (*s*, 2H, CH_2), and 3.82 (*s*, 3H, CH_3).

5.6.5 4-{[2-(naphthalen-1-ylimino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (5)

The title compound **5** was synthesized as per the method described for compound 1 by taking **A5** (250 mg, 0.78 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **5**, (175 mg, 49.50%), **m.p.** >270°C.

Anal

TLC : Rf 0.25 (Toluene:Methanol) (8:2)
IR (cm^{-1}) : 3136, 1697 and 1609
MS : m/z 451 (M^+)
^1H-NMR : δ 11.2-13.8 (*br*, OH), 8.13-8.15 (*d*, 2H, Ar*H*), 6.98-7.99 (*m*, 15H, Ar*H*)

5.6.6 4-{[3-benzyl-2-(naphthalen-1-ylimino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (6)

The title compound **6** was synthesized as per the method described for compound **1** replacing **A1** by **A6** (250 mg, 0.75 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **6**, (284 mg, 81.42%), **m.p.** 248-252°C.

Anal

TLC : Rf 0.57 (Hexane: Ethyl Acetate) (7:3)
IR (cm^{-1}) : 3433, 1716, 1651 and 1607
^1H-NMR : δ 8.13-8.17 (*d*, 2H, Ar*H*), 7.97-8.02 (*m*, 2H, Ar*H*), 7.83 (*s,* 1H, C*H*), 7.39-7.72 (*m*, 7H, Ar*H*), 7.09-7.23 (*m*, 5H, Ar*H*) and 4.62 (*s*, 2H, CH_2).

5.6.7 4-{[2-((4-fluorophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (7)

The title compound **7** was synthesized as per the method described for compound **1** taking **A7** (250 mg, 0.87 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **7**, (252 mg, 69.15 %), **m.p.** >270°C.

Anal

TLC : Rf 0.29 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3114, 1694, 1636 and 1606
MS : m/z 418 (M^+), 419 (M+1) and 420 (M+2).

5.6.8 4-{[3-benzyl-2-((4-fluorophenyl)imino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (8)

The title compound **8** was synthesized as per the method described for compound **1** replacing **A1** by **A8** (250 mg, 0.83 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **8**, (249 mg, 69.15 %), **m.p.** >270°C.

Anal

TLC : Rf 0.38, Hexane:Ethyl acetate(7:3)
IR (cm^{-1}) : 3108, 1692, 1641 and 1605
^{1}H-NMR : δ 8.00-8.02 (*d*, 2H, Ar*H*), 7.80 (*s*, 1H, C*H*), 7.59-7.57 (*d*, 2H, Ar*H*), 7.43-7.45 (*d*, 2H, Ar*H*), 7.27-7.37 (*m*, 3H, Ar*H*), 7.13-7.17 (*m*, 2H, Ar*H*), 6.97-7.01 (*m*, 2H, Ar*H*) and 5.13 (*s*, 2H, CH_2)

5.6.9 4-{[4-oxo-3-phenyl-2-(p-tolylimino)thiazolidin-5-ylidene]methyl}benzoic acid (9)

The title compound **9** was synthesized as per the method described for compound **1** replacing **A1** by **A9** (250 mg, 0.88 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **9**, (313 mg, 85.5 %), **m.p.** >270°C.

Anal

TLC : Rf 0.31(Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3136, 1687, 1638 and 1603
MS : m/z 415 (M$^+$)
^{1}H-NMR : δ 8.02-8.04 (*d*, 2H, Ar*H*), 7.81 (*s*, 1H, C*H*), 7.47-7.61 (*m*, 4H, Ar*H*), 7.33-7.39 (*m*, 4H, Ar*H*), 7.16-7.18 (*m*, 2H, Ar*H*), 6.82-6.85 (*m*, 1H, Ar*H*), and 2.54 (*s*, 3H, Ar*H*)

5.6.10 4-{[3-benzyl-4-oxo-2-(p-tolylimino)thiazolidin-5-ylidene]methyl}benzoic acid (10)

The title compound **10** was synthesized as per the method described for compound **1** replacing **A1** with **A10** (250 mg, 0.84 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **10**, (313 mg, 86.8 %), **m.p.** 253-255 °C.

Anal

TLC : Rf 0.44 (Hexane: Ethyl acetate) (7:3)
IR (cm^{-1}) : 3017, 1692, 1648 1605 and1564
^{1}H-NMR : δ 8.06-8.10 (*m*, 2H, Ar*H*), 7.99 (*s*, 1H, C*H*), 7.72-7.81 (*m*, 3H, Ar*H*), 7.58-7.60 (*d*, 1H, Ar*H*), 7.18-7.44 (*m*, 7H, Ar*H*), 4.61 (*s*, 2H, CH_2) and 2.38 (*s*, 3H, CH_3)

5.6.11 4-{[2-((3-nitrophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (11)

The title compound **11** was synthesized as per the method described for compound **1** replacing **A1** with **A11** (250 mg, 0.79 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **11**, (253 mg, 71.46 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.44 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3428, 1716 , 1695, 1636 and 1610
MS : m/z 445.7 (M^{+})

5.6.12 4-{[3-benzyl-2-((3-nitrophenyl)imino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (12)

The title compound **12** was synthesized as per the method described for compound **1** by replacing **A1** with **A12** (250 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **12**, (260 mg, 74.28 %), **m.p.** 234-238 °C.

Anal

TLC : Rf 0.53 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3413, 1695, 1643 and 1531
^{1}H-NMR : δ 8.04-8.07 (*m*, 1H, Ar*H*), 7.99-8.01 (*d*, 2H, Ar*H*), 7.86 (*s*, 1H, C*H*), 7.79-7.80 (*m*, 1H, Ar*H*), 7.66-7.70 (*t*, 1H, Ar*H*), 7.58-7.61 (*m*, 2H, Ar*H*), 7.29-7.47 (*m*, 6H, Ar*H*) and 5.15 (*s*, 2H, C*H*$_2$).

5.6.13 4-{[2-((3-chlorophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (13)

The title compound **13** was synthesized as per the method described for compound **1** replacing **A1** by **A13** (250 mg, 0.82 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **13**, (300 mg, 83.56 %), **m.p.** 253-255 °C.

Anal

TLC : Rf 0.3 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3413, 1694, 1646 and 1604
MS : m/z 434.8 (M^{+}) and 436.9 (M+2)

^{1}H-NMR : δ 11-15 (*br*, 1H, *OH*), 8.02-8.04 (*d*, 2H, Ar*H*), 7.83 (*s*, 1H, C*H*), 7.49-7.62 (*m*, 6H, Ar*H*), 7.36-7.40 (*t*, 2H, Ar*H*), 7.16-7.20 (*t*, 1H, Ar*H*) and 6.96-6.99 (*m*, 2H, Ar*H*)

5.6.14 4-{[3-benzyl-2-((3-chlorophenyl)imino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (14)

The title compound **14** was synthesized as per the method described for compound **1** replacing **A1** by **A14** (250 mg, 0.79 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **14**, (250 mg, 70.42%), **m.p.** 210-214 ˚C.

Anal

TLC : Rf 0.48 (Hexane: Ethyl acetate) (7:3)
IR (cm^{-1}) : 3115, 1693, 1643 and 1607
MS : m/z 448.9 (M$^+$), 450 (M+1) and 451 (M+2).
^{1}H-NMR : δ 8.09-8.11 (*d*, 2H, Ar*H*), 8.02-8.04 (*d*, 1H, Ar*H*), 7.82 (*s*, 1H, C*H*), 7.68-7.70 (*d*, 2H, Ar*H*), 7.17-7.55 (*m*, 8H, Ar*H*), 4.64 (*s*, 2H, C*H*$_2$).

5.6.15 4-{[2-((3-bromophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (15)

The title compound **15** was synthesized as per the method described for compound **1** replacing **A1** by **A15** (250 mg, 0.72 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **15**, (248 mg, 72.14%), **m.p.** 248-252 ˚C.

Anal

TLC : Rf 0.34 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3105, 1718 , 1689, 1641 and 1604
^{1}H-NMR : δ 8.06-8.10 (*d*, 2H, Ar*H*), 7.83 (*s*, 1H, Ar*H*), 7.76 (*s*, 1H, C*H*), 7.30-7.66 (*m*, 8H, Ar*H*), 7.14-7.20 (*m*, 1H, Ar*H*) and 6.94-6.98 (*m*, 2H, Ar*H*)

5.6.16 4-{[3-benzyl-2-((3-bromophenyl)imino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (16)

The title compound **16** was synthesized as per the method described for compound **1** by takin **A16** (250 mg, 0.69 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **16**, (240 mg, 72.14 %), **m.p.** 248-252 °C.

Anal

TLC : Rf 0.48 (Hexane: Ethyl acetate) (7:3)
IR (cm^{-1}) : 3088, 1694, 1657 and 1604
MS : m/z 494.9 (M$^+$) and 495.8 (M+1)
^{1}H-NMR : δ 8.09-8.11 (*d*, 2H, Ar*H*), 8.02-8.04 (*d*, 1H, Ar*H*), 7.82 (*s,* 1H, C*H*), 7.22-7.71 (*m*, 10H, Ar*H*) and 4.64 (*s*, 2H, C*H*$_2$).

5.6.17 4-{[2-(cyclohexylimino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl}benzoic acid (17)

The title compound **17** was synthesized as per the method described for compound **1** by taking **A17** (250 mg, 0.91 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **17**, (268 mg, 72.54 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.33 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3105, 1691, 1647 and 1605
MS : m/z 407.2 (M$^+$)

5.6.18 4-{[3-benzyl-4-oxo-2-(phenylimino)thiazolidin-5-ylidene]methyl}benzoic acid (18)

The title compound **18** was synthesized as per the method described for compound **1** by taking **A19** (250 mg, 0.88 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **18**, (297 mg, 81 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.26 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3101, 1702, 1645 cm^{-1} and 1601
^{1}H-NMR : δ 7.99-8.01 (*d*, 2H, Ar*H*), 7.80 (*s,* 1H, C*H*), 7.57-7.59 (*d*, 2H, Ar*H*), 7.28-7.46 (*m*, 7H, Ar*H*), 7.17-7.21 (*t*, 1H, Ar*H*), 6.97-6.99 (*m*, 2H, Ar*H*) and 5.13 (*s*, 2H,C*H*$_2$)

5.6.19 4-{[4-oxo-3-phenethyl-2-(phenylimino)thiazolidin-5-ylidene]methyl}benzoic acid (19)

The title compound **19** was synthesized as per the method described for compound **1** by taking **A20** (250 mg, 0.84 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **19**, (260 mg, 71.76%), **m.p.** >270 ˚C.

Anal

TLC : Rf 0.29 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3413, 1690, 1645 and 1600
MS : m/z 429 (M$^+$)
^{1}H-NMR : δ 7.99-8.01 (*d*, 2H, Ar*H*), 7.73 (*s*, 1H, C*H*), 7.54-7.56 (*d*, 2H, Ar*H*), 7.36-7.40 (*t*, 2H, Ar*H*), 7.16-7.36 (*m*, 6H, Ar*H*), 6.88-6.91 (*dd*, 2H, Ar*H*), 4.17-4.21 (*t*, 2H, C*H*$_2$) and 3.05-3.09 (*t*, 2H,C*H*$_2$)

5.6.20 4-{[3-(2-morpholinoethyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene] methyl]benzoic acid (20)

The title compound **20** was synthesized as per the method described for compound **1** by taking **A21** (250 mg, 0.82 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **20**, (260 mg, 72.44 %), **m.p.** >270 ˚C.

Anal

TLC : Rf 0.26 (Toluene:Methanol) (9.5:0.5)
IR (cm^{-1}) : 3409, 1711, 1644 and 1593
MS : m/z 438.1 (M$^+$)

5.6.21 4-{[2-(benzylimino)-3-(2-morpholinoethyl)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (21)

The title compound **21** was synthesized as per the method described for compound **1** by taking **A22** (250 mg, 0.78 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **21**, (265 mg, 75 %), **m.p.** >270 ˚C.

Anal

TLC : Rf 0.4 (Hexane:Ethyl acetate) (7:3)

IR (cm^{-1}) : 3126, 1728, 1704, 1645 and 1595
MS : m/z 450.2 (M-1)

5.6.22 4-{[4-oxo-3-phenyl-2-(pyridin-3-ylimino)thiazolidin-5-ylidene]methyl}benzoic acid (22)

The title compound **22** was synthesized as per the method described for compound **1** by taking **A23** (250 mg, 0.93 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **22**, (274 mg, 73.56 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.26 (Toluene:Methanol) (9.5:0.5)
IR (cm^{-1}) : 3397, 1712, 1734 and 1610
MS : m/z 402.2 (M$^+$)

5.6.23 4-{[3-benzyl-4-oxo-2-(pyridin-3-ylimino)thiazolidin-5-ylidene]methyl}benzoic acid (23)

The title compound **23** was synthesized as per the method described for compound **1** by taking **A24** (250 mg, 0.88 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **23**, (345 mg, 94.11 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.39 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3111, 1710, 1654 and 1603
^{1}H-NMR : δ 12.75 (*bs*, 1H, *OH*), 8.680-8.686 (*d*, 1H, Ar*H*), 8.61-8.63 (*dd*, 1H, Ar*H*), 8.07-8.14 (*d*, 2H, Ar*H*), 7.90-7.93 (*d*, 1H, Ar*H*), 7.85 (*s,* 1H, C*H*), 7.74-7.76 (*d*, 2H, ArC*H*), 7.54-7.57 (*m*, 1H, Ar*H*), 7.20-7.32 (*m*, 5H, Ar*H*) and 4.63 (*s*, 2H, CH_2).

5.6.24 4-{[4-oxo-3-phenyl-2-(propylimino)thiazolidin-5-ylidene]methyl}benzoic acid (24)

The title compound **24** was synthesized as per the method described for compound **1** by taking **A25** (250 mg, 1.06 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **24**, (281 mg, 71.92 %), **m.p.** 246-248 °C.

Anal

TLC : Rf 0.29 (Toluene:Methanol) (9.5:0.5)
IR (cm^{-1}) : 3112, 1693, 1648 and 1604
MS : m/z 366.9 (M^+)

5.6.25 4-{[2-(isopropylimino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl}benzoic acid (25)

The title compound **25** was synthesized as per the method described for compound **1** by taking **A27** (250 mg, 1.06 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **25**, (305 mg, 78.15 %), **m.p.** >260 ˚C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3111, 1689, 1644 and 1604
MS : m/z 367 (M^+)

5.6.26 4-{[2-(cyclopropylimino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl}benzoic acid (26)

The title compound **26** was synthesized as per the method described for compound **1** by taking **A29** (250 mg, 1.07 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **26**, (307 mg, 78.43 %), **m.p.** >260 ˚C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3109, 1709, 1690, 1650 and 1601
MS : m/z 365 (M^+)
^{1}H-NMR : δ 8.04-8.06 (*d*, 2H, Ar*H*), 7.74 (*s,* 1H, C*H*), 7.70-7.72 (*d*, 2H, Ar*H*), 7.30-7.48 (*m*, 5H, Ar*H*), 2.77-2.80 (*m*, 1H, C*H*), 0.81-0.84 (*m*, 2H, CH_f) and 0.55-.059 (*m*, 2H, CH_2)

5.6.27 4-{[2-(butylimino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl}benzoic acid (27)

The title compound **27** was synthesized as per the method described for compound **1** by replacing **A1** with **A31** (250 mg, 1.00 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **27**, (296 mg, 77.42 %), **m.p.** 227-229°C.

Anal

TLC : Rf 0.28 (Toluene:Methanol) (8.5:1.5)
IR (cm^{-1}) : 3076, 1692, 1649 and 1603
MS : m/z 380.9 (M^+)

5.6.28 4-{[3-(4-methoxybenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene]methyl} benzoic acid (28)

The title compound **28** was synthesized as per the method described for compound **1** replacing **A1** by **A33** (250 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **28**, (271 mg, 76.45 %), **m.p.** >260°C.

Anal

TLC : Rf 0.32 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3116, 1691, 1641 and 1609
^{1}H-NMR : δ 7.99-8.01 (*d*, 2H, Ar*H*), 7.77 (*s*, 1H, C*H*), 7.53-7.55 (*d*, 2H, Ar*H*), 7.37-7.44 (*m*, 4H, Ar*H*), 7.17-7.21 (*t*, 1H, Ar*H*), 6.98-7.00 (*d*, 2H, Ar*H*), 6.86-6.89 (*d*, 2H, Ar*H*), 5.07 (*s*, 2H, CH_2) and 3.77 (*s*, 3H, CH_3)

5.6.29 4-{[2-(benzylimino)-3-(4-methoxybenzyl)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (29)

The title compound **29** was synthesized as per the method described for compound **1** by replacing **A1** with **A34** (250 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **29**, (263 mg, 75 %), **m.p.** 253-256°C.

Anal

TLC : Rf 0.41 (Hexane:Ethyl Acetate) (7:3)
IR (cm^{-1}) : 3455, 1701, 1638 and 1600
^{1}H-NMR : δ 8.04-8.06 (*d*, 2H, Ar*H*), 7.77 (*s*, 1H, C*H*), 7.67-7.69 (*d*, 2H, Ar*H*), 7.17-7.37 (*m*, 7H, Ar*H*), 6.83-6,85 (*d*, 2H, Ar*H*), 4,96 (*s*, 2H, CH_2), 4.63 (*s*, 2H, CH_2) and 3.73 (*s*, 3H, CH_3).

5.6.30 4-{[3-(2-chlorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene]methyl} benzoic acid (30)

The title compound **30** was synthesized as per the method described for compound 1 replacing **A1** by **A35** (250 mg, 0.79 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **30**, (250 mg, 70.44 %), **m.p.** 258-260°C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3066, 1722, 1690, 1643 and 1611
MS : m/z 448.41 (M$^+$)
^{1}H-NMR : δ 12.92 (bs, 1H, O*H*), 8.02-8.04 (*d*, 2H, Ar*H*), 7.83 (*s*, 1H, C*H*), 7.59-7.61 (*d*, 2H, Ar*H*), 7.16-7.46 (*m*, 7H, Ar*H*), 6.93-6.95 (*d*, 2H, Ar*H*), and 5.22 (*s*, 2H, CH_2)

5.6.31 4-{[2-(benzylimino)-3-(2-chlorobenzyl)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (31)

The title compound **31** was synthesized as per the method described for compound 1 replacing **A1** by **A36** (250 mg, 0.75 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **31**, (290 mg, 83.53%), **m.p.** 251-254°C.

Anal

TLC : Rf 0.45 (Hexane: Ethyl acetate) (7:3)
IR (cm^{-1}) : 3414, 1692, 1639 and 1604
^{1}H-NMR : δ 8.08-8.10 (*d*, 2H, Ar*H*), 7.79 (*s*, 1H, C*H*), 7.64-7.67 (*d*, 2H, Ar*H*), 7.08-7.33 (*m*, 9H, Ar*H*), 5.16 (*s*, 2H, NCH_2) and 4.65 (*s*, 2H, CH_2).

5.6.32 4-{[4-oxo-2-(phenylimino)-3-(pyridin-3-ylmethyl)thiazolidin-5-ylidene] methyl}benzoic acid (32)

The title compound **32** was synthesized as per the method described for compound 1 by taking **A37** (250 mg, 0.88 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **32**, (264 mg, 72.12 %), **m.p.** 264-266°C.

Anal

TLC : Rf (Toluene:Methanol) (9.5:0.5)
IR (cm^{-1}) : 3126, 1708, 1649 and 1598
MS : m/z 415.9 (M$^+$)
^{1}H-NMR : δ 8.69 (*s*, 1H, Ar*H*), 8.50-8.51 (*d*, 1H, Ar*H*), 7.97-7.99 (*d*, 1H, Ar*H*), 7.85-7.87 (*d*, 2H, Ar*H*), 7.80 (*s*, 1H, C*H*), 7.55-7.57 (*d*, 2H, Ar*H*), 7.36-7.40 (*m*, 3H, Ar*H*), 7.16-7.19 (*t*, 1H, Ar*H*), 6.96-6.98 (*d*, 2H, Ar*H*) and 5.14 (*s*, 2H, CH_2)

5.6.33 4-{[2-(benzylimino)-4-oxo-3-(pyridin-3-ylmethyl)thiazolidin-5-ylidene]methyl} benzoic acid (33)

The title compound **33** was synthesized as per the method described for compound 1 by taking **A38** (250 mg, 0.84 mmol) instead of **A1**. The crude product so obtained was recrystallized from methanol to afford the desired compound **33**, (240 mg, 66.6 %), **m.p.** 253-256°C.

Anal

TLC : Rf 0.45 (Hexane: Ethyl acetate) (7:3)
IR (cm^{-1}) : 3397, 1708, 1649 and 1597
^{1}H-NMR : δ 8.63 (*s*, 1H, Ar*H*), 8.47-8.49 (*d*, 1H, Ar*H*), 8.04-8.06 (*d*, 2H, Ar*H*), 7.79 (*s*, 1H, C*H*), 7.74-7.75 (*d*, 1H, Ar*H*), 7.69-7.71 (*d*, 2H, Ar*H*), 7.22-7.37 (*m*, 6H, Ar*H*), 5.07 (*s*, 2H, NCH_2) and 4.64 (*s*, 2H, CH_2).

5.6.34 4-{[4-oxo-3-phenyl-2-(o-tolylimino)thiazolidin-5-ylidene]methyl}benzoic acid (34)

The title compound **34** was synthesized as per the method described for compound 1 replacing **A1** by **A39** (250 mg, 0.88 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **34**, (283 mg, 77.36 %), **m.p.** 240-244°C.

Anal

TLC : Rf 0.31 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3123, 1717, 1691, 1643 and 1601
^{1}H-NMR : δ 7.97-7.99 (*d*, 2H, Ar*H*), 7.76 (*s*, 1H, C*H*), 7.43-7.53 (*m*, 5H, Ar*H*), 7.29-7.35 (*m*, 2H, Ar*H*), 6.79-7.17 (*m*, 4H, Ar*H*), and 2.07 (*s*, 3H, CH_3)

5.6.35 4-{[3-benzyl-4-oxo-2-(o-tolylimino)thiazolidin-5-ylidene]methyl}benzoic acid (35)

The title compound **35** was synthesized as per the method described for compound **1** replacing **A1** with **A40** (250 mg, 0.84 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **35**, (234 mg, 64.81%), **m.p.** 257 - 260°C.

Anal

TLC : Rf 0.37 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3111, 1717, 1691, 1643 and 1601
^{1}H-NMR : δ 7.98-8.01 (*d*, 2H, Ar*H*), 7.83 (*s*, 1H, CH_c), 7.59-7.61 (*d*, 1H, Ar*H*), 7.41-7.43 (*d*, 2H, Ar*H*), 7.18-7.38 (*m*, 5H, Ar*H*), 7.06-7.10 (*t*, 1H, Ar*H*), 6.86-6.88 (*d*, 1H, Ar*H*), 5.14 (*s*, 2H, CH_2) and 1.91 (*s*, 3H, CH_3).

5.6.36 4-{[2-((4-ethylphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl} benzoic acid (36)

The title compound **36** was synthesized as per the method described for compound **1** replacing **A1** with **A41** (250 mg, 0.84 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **36**, (271 mg, 75.23%), **m.p.** >270°C.

Anal

TLC : Rf 0.37 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3421, 1717, 1690, 1645 and 1604
^{1}H-NMR : δ 8.03-8.05 (*d*, 2H, Ar*H*), 7.80 (*s*, 1H, C*H*), 7.35-7.58 (*m*, 7H, Ar*H*), 7.17-7.20 (*t*, 1H, Ar*H*), 6.93-6.95 (*d*, 2H, Ar*H*), 6.86-6.88 (*d*, 1H, Ar*H*),2.70-2.76 (*m*, 2H, CH_2) and 1.23-1.31 (*m*, 3H, CH_3)

5.6.37 4-{[3-benzyl-2-((4-ethylphenyl)imino)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (37)

The title compound **37** was synthesized as per the method described for compound **1** replacing **A1** with **A42** (250 mg, 0.80 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **37**, (286 mg, 80.45%), **m.p.** >270°C.

Anal

TLC : Rf 0.38 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3017, 1715, 1691, 1653 and 1606
^{1}H-NMR : δ 13.00 (bs, 1H, *OH*), 8.06-8.08 (*d*, 2H, Ar*H*), 7.81 (*s*, 1H, C*H*), 7.73-7.75 (*d*, 2H, Ar*H*), 7.19-7.35 (*m*, 9H, Ar*H*), 4.62 (*s*, 2H, CH_2), 2.65-2.71 (*m*, 2H, CH_2) and 1.19-1.26 (*m*, 3H, CH_3).

5.6.38 4-{[2-((4-(2-methoxy-2-oxoethyl)phenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene]methyl}benzoic acid (38)

The title compound **38** was synthesized as per the method described for compound **1** replacing **A1** with **A43** (250 mg, 0.73 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **38**, (251 mg, 72.44 %), **m.p.** 252-254°C.

Anal

TLC : Rf 0.37 (Toluene:Methanol) (8.5:1.5)
IR (cm^{-1}) : 3415, 1736, 1720, 1691, 1647 and 1608
^{1}H-NMR : δ 7.85-7.90 (*m*, 2H, Ar*H*), 7.75 (*s*, 1H, C*H*), 6.74-7.53 (*m*, 11H, Ar*H*), 3.53 (*s*, 2H, CH_2) and 2.40 (*s*, 3H, CH_3)

5.6.39 4-{[3-benzyl-2-((4-(2-methoxy-2-oxoethyl)phenyl)imino)-4-oxothiazolidin-5-ylidene]methyl}benzoic acid (39)

The title compound **39** was synthesized as per the method described for compound **1** replacing **A1** with **A44** (250 mg, 0.70 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **39**, (248mg, 72.44 %), **m.p.** 252-254°C.

Anal

TLC : Rf 0.4 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3129, 1736, 1720, 1691, 1647 and 1608
MS : m/z 485.23 (M-1)

5.6.40 4-{[2-((4-(3-methoxy-3-oxoprop-1-en-1-yl)phenyl)imino)-4-oxo-3-phenyl thiazolidin-5-ylidene]methyl}benzoic acid (40)

The title compound **40** was synthesized as per the method described for compound **1** replacing **A1** with **A45** (250 mg, 0.70 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **40**, (259 mg, 75.64 %), **m.p.** >270°C.

Anal

TLC : Rf 0.32 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3116, 1717, 1690, 1645 and 1604
^{1}H-NMR : δ 7.96-7.98 (*d*, 2H, Ar*H*), 7.75-7.78 (*m,* 3H, Ar*H*), 7.64-7.68 (*d,* 1H, C*H*), 7.51-7.55 (*m,* 4H, Ar*H*),7.29-7.33 (*t,* 2H, Ar*H*), 7.09-7.13 (*t,* 1H, Ar*H*), 6.88-6.90 (*d,* 2H, Ar*H*), 6.54-6.58 (*d,* 1H, C*H*), and 3.71 (*s*, 3H, CH_3)

5.6.41 4-{[3-benzyl-2-((4-(3-methoxy-3-oxoprop-1-en-1-yl)phenyl)imino)-4-oxothiazolidin-5-ylidene] methyl}benzoic acid (41)

The title compound **41** was synthesized as per the method described for compound **1** replacing **A1** with **A46** (250 mg, 0.70 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **41**, (176 mg, 66 %), **m.p.** >270°C.

Anal

TLC : Rf 0.43 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3119, 1717, 1690, 1645 and 1604
MS : m/z 499.13 (M^+)

5.6.42 4-{[3-(3-chlorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene]methyl} benzoic acid (42)

The title compound **42** was synthesized as per the method described for compound **1** replacing **A1** with **A47** (250 mg, 0.79 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **42**, (267 mg, 74.44 %), **m.p.** 252-254°C.

Anal

TLC : Rf 0.37 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3056, 1719, 1693, 1658 and 1611
^{1}H-NMR : δ 8.11-8.13 (*d*, 2H, Ar*H*), 7.82 (*s*, 1H, C*H*), 7.66-7.68 (*d,* 2H, Ar*H*), 7.39-7.55 (*m,* 5H, Ar*H*), 7.15-7.28 (*m,* 4H, Ar*H*), and 4.63 (*s*, 2H, CH_2)

5.6.43 4-{[2-(benzylimino)-3-(3-chlorobenzyl)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (43)

The title compound **43** was synthesized as per the method described for compound **1** replacing **A1** with **A48** (250 mg, 0.75 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **43**, (302 mg, 86.5 %), **m.p.** 243 - 246 °C.

Anal

TLC : Rf 0.39 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3104, 1686, 1647 and 1606
^{1}H-NMR : δ 13.11 (*brs*, 1H, O*H*), 8.04-8.06 (*d*, 2H, Ar*H*), 7.80 (*s*, 1H, C*H*), 7.68-7.70 (*d*, 2H, Ar*H*), 7.19-7.42 (*m*, 9H, Ar*H*), 5.03-5.05 (*d*, 2H, NCH_2) and 4.63 (*s*, 2H, CH_2).

5.6.44 4-{[3-(4-chlorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene]methyl} benzoic acid (44)

The title compound **44** was synthesized as per the method described for compound **1** replacing **A1** with **A49** (250 mg, 0.79 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **44**, (260 mg, 73.54 %), **m.p.** 254-257°C.

Anal

TLC : Rf 0.39 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3430, 1686, 1641 and 1585
^{1}H-NMR : δ 8.08-8.10 (*d*, 2H, Ar*H*), 7.82 (*s*, 1H, C*H*), 7.70-7.72 (*d*, 2H, Ar*H*), 7.22-7.54 (*m*, 9H, Ar*H*), and 4.61 (*s*, 2H, CH_2)

5.6.45 4-{[2-(benzylimino)-3-(4-chlorobenzyl)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (45)

The title compound **45** was synthesized as per the method described for compound **1** replacing **A1** with **A50** (250 mg, 0.75 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **45**, (238 mg, 68.18 %), **m.p.** >270°C.

Anal

TLC : Rf 0.38 (Hexane:Ethyl acetate) (7:3)

IR (cm^{-1}) : 3107, 1685, 1644 and 1606
^{1}H-NMR : δ 13.11 (*brs*, 1H, O*H*), 8.04-8.06 (*d*, 2H, Ar*H*), 7.80 (*s*, 1H, C*H*), 7.70-7.72 (*d*, 2H, Ar*H*), 7.25-7.38 (*m*, 9H, Ar*H*), 5.03 (*s*, 2H, NCH_2) and 4.62 (*s*, 2H, CH_2).

5.6.46 4-{[3-(4-fluorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene]methyl} benzoic acid (46)

The title compound **46** was synthesized as per the method described for compound **1** replacing **A1** with **A51** (250 mg, 0.83 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **46**, (261 mg, 72.68 %), **m.p.** 243-247°C.

Anal

TLC : Rf 0.5 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3412, 1714, 1684, 1652 and 1599
^{1}H-NMR : δ 12.97 (*bs*, 1H, O*H*), 8.08-8.10 (*d*, 2H, Ar*H*), 7.82 (*s*, 1H, C*H*), 7.71-7.73 (*d*, 2H, Ar*H*), 7.40-7.54 (*m*, 5H, Ar*H*), 7.23-7.27 (*m*, 2H, Ar*H*), 7.00-7.05 (*t*, 2H, Ar*H*), and 4.60 (*s*, 2H, CH_2)

5.6.47 4-{[2-(benzylimino)-3-(4-fluorobenzyl)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (47)

The title compound **47** was synthesized as per the method described for compound **1** replacing **A1** with **A52** (250 mg, 0.73 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **47**, (286 mg, 87.4%), **m.p.** 263-266°C.

Anal

TLC : Rf 0.5 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3112, 1685, 1644 and 1606
^{1}H-NMR : δ 12.76 (*brs*, 1H, O*H*), 7.98-8.00 (*d*, 2H, Ar*H*), 7.17 (*s*, 1H, C*H*), 7.60-7.62 (*d*, 2H, Ar*H*), 7.16-7.37 (*m*, 7H, Ar*H*), 6.96-7.00 (*m*, 2H, Ar*H*), 4.97 (*s*, 2H, NCH_2) and 4.57 (*s*, 2H, CH_2).

5.6.48 4-{[2-(benzylimino)-3-(3,4-dimethoxybenzyl)-4-oxothiazolidin-5-ylidene]methyl} benzoic acid (48)

The title compound **48** was synthesized as per the method described for compound **1** replacing **A1** with **A53** (250 mg, 0.73 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **48**, (292 mg, 84.37%), **m.p.** 253-256°C.

Anal

TLC : Rf 0.51 (Hexane:Ethyl acetate) (7:3)
IR (cm^{-1}) : 3417, 1691, 1645 and 1611
^{1}H-NMR : δ 12.98 (*brs*, 1H, O*H*), 8.03-8.05 (*d*, 2H, Ar*H*), 7.78 (*s*, 1H, C*H*), 7.69-7.71 (*d*, 2H, Ar*H*), 7.23-7.36 (*m*, 5H, Ar*H*), 6.77-6.97 (*m*, 3H, Ar*H*), 5.03 (*s*, 2H, NCH_2), 4.63 (*s*, 2H, CH_2) and 3.72-3.75 (*s*, 6H, CH_3)

5.7 Synthesis of substituted 2-{4-[(2-imino-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetic acid (49-96)

5.7.1 General method of synthesis of substituted 5-(4-hydroxybenzylidene)-2-imino-3-phenylthiazolidin-4-one (B1-B53)

A mixture of 4-hydroxybenzaldehyde (0.409 g, 3.35 mmol), β-alanine (0.358 g, 4.02 mmol), and 2-{[2-methoxyphenyl]imino}-3-phenylthiazolidin-4-one **A1** (1g, 3.35 mmol) in 15 mL glacial acetic acid in a two-necked round bottomed flask was refluxed with stirring at 120°C for 3 h. The reaction mixture was cooled to room temperature and 75 mL of water was added. The precipitated solid was washed with cold glacial acetic acid (10 mL) and distilled water (100 mL). The yellow solid **B1** so obtained was dried in vacuum at 60°C for 24 h.

Table-19: Physical and IR data of intermediates **B1** to **B53**

S. No	Code	Thiazolidine*	% yield (Rf)#	IR (KBr Cm^{-1})	m.p. (°C)
1	B1	A1	78.35 (0.42)	3372,1697,1636 and 1583	>270
2	B2	A2	83.3 (0.42)	3382, 1700, 1647 and 1581	>270
3	B3	A3	83.41 (0.39)	3347, 1691, 1633 and 1585	>270
4	B4	A4	63.52 (0.4)	3380, 1687, 1632 and 1581	256-258
5	B5	A5	65.56 (0.41)	3387, 1691, 1639 and 1581	218-222
6	B6	A6	78.46 (0.41)	3393, 1686, 1648 and 1583	>270
7	B7	A7	75.89 (0.32)	3394,1698,1639 and 1581	>270
8	B8	A8	75.89 (0.5)	3373, 1688, 1636 and 1586	>270
9	B9	A9	76.12 (0.37)	3375, 1695, 1637 and 1586	238-242
10	B10	A10	90.9 (0.52)	3375, 1695, 1637 and 1586	253-256

S. No	Code	Thiazolidine*	% yield (Rf)#	IR (KBr Cm^{-1})	m.p. (°C)
11	B11	A11	73.25 (0.41)	3391, 1694, 1638, 1609 and 1581	>270
12	B12	A12	73.25 (0.41)	3391, 1694, 1638 and 1581	>270
13	B13	A13	79.37 (0.31)	3365, 1695, 1632 and 1586	>270
14	B14	A14	63.63 (0.39)	3358, 1690, 1646 and 1580	>270
15	B15	A15	76.24 (0.4)	3369, 1696, 1634 and 1585	246-248
16	B16	A16	70.30 (0.46)	3369, 1696, 1634 and 1585	253-256
17	B17	A17	76.34 (0.39)	3386, 1741, 1687, 1640 and 1582	248-252
18	B18	A18	77.56 (0.45)	3390, 1728, 1674, 1636 and 1592	137-140
19	B19	A19	73.52 (0.31)	3368, 1689, 1644 and 1588	224-228
20	B20	A20	73.68 (0.44)	3412, 1671, 1632 and 1576	200-204
21	B21	A21	74.23 (0.37)	3133, 1704, 1635 and 1591	84-88
22	B22	A22	54.5 (0.45)	3133, 1704, 1635 and 1591	165-168
23	B23	A23	70.42 (0.24)	3373, 1611, 1632 and 1581	>270
24	B24	A24	63.23 (0.43)	3373, 1611, 1632 and 1581	>270
25	B25	A25	73.81 (0.35)	3387, 1730, 1684, 1627 and 1582	239-241
26	B26	A26	81.6 (0.43)	3387, 1684, 1627 and 1582	251-254
27	B27	A27	74.13 (0.32)	3385, 1739, 1694, 1638 and 1591	193-197
28	B28	A28	80.00 (0.42)	3340, 1720,1684, 1627 and 1582	180-185
29	B29	A29	75.42 (0.29)	3389, 1685, 1628 and 1580	265-267
30	B30	B30	82.36 (0.69)	3386, 1772, 1619 and 1540	131-134
31	B31	A31	72.65 (0.51)	3391, 1684, 1633 and 1584	183-187
32	B32	A32	74.4 (0.49)	3391, 1684, 1633 and 1584	257-260
33	B33	A33	73.58 (0.4)	3383, 1685, 1635 and 1586	223-225
34	B35	A35	74.28 (0.57)	3400, 1688, 1638 and 1583	244-248
35	B36	A36	69.23 (0.41)	3392, 1686, 1645 and 1592	256-258
36	B37	A37	70.36 (0.33)	3385, 1696, 1631 and 1591	216-220
37	B38	A38	75 (0.42)	3400, 1696, 1631 and 1591	211-214
38	B39	A39	79.82 (0.38)	3378, 1692, 1635 and 1582	>270
39	B40	A40	69.54 (0.43)	3380, 1682, 1628 and 1595	>270
40	B41	A41	78.86 (0.41)	3370, 1714, 1689, 1631 and 1586	220-222
41	B42	A42	75.18 (0.42)	3370, 1714, 1689, 1631 and 1586	235-237
42	B47	A47	76.48 (0.48)	3392, 1686, 1641 and 1585	206-210
43	B48	A48	69.20 (0.46)	3392, 1691, 1643 and 1586	223-226
44	B49	A49	75.72 (0.45)	3383, 1689, 1642 and 1580	244-248
45	B50	A50	78.78 (0.43)	3400, 1681, 1644 and 1599	257-260
46	B51	A51	79.46 (0.49)	3375, 1689, 1644 and 1580	237-241
47	B52	A52	72.5 (049)	3370, 1686, 1646 and 1581	255-258
48	B53	A53	87.5 (0.5)	3497, 1707, 1643 and 1598	215-218

*Corresponding Imino-thiazolidine-4-one (A1-A53), # Toluene:Methanol (9:1),

5.7.2 General method of synthesis of substituted Ethyl 2-{4-[(2-imino-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetate (C1-C53).

A mixture of 5-(4-hydroxybenzylidene)-2-((2-methoxyphenyl)imino)-3-phenylthiazolidin-4-one **B1** (500 mg, 1.242 mmol) and anhydrous potassium carbonate (342.79 mg, 2.484 mmol) in 5 mL dimethyl formamide contained in a two-necked round bottomed flask was stirred at 100˚C for 30 min. Ethylbromoacetate (207.48 mg, 137.86 µl, 1.242 mmol) was added dropwise at 100˚C. Stirring was continued at room temperature for 1hr. The reaction mixture was later poured onto ice containing glacial acetic acid. The precipitated solid was collected and washed with distilled water followed by hexane. The pale yellow solid **C1** obtained was dried in vacuum desiccator over silica for 24 h.

Table-20: Physical and IR data of intermediates **C1** to **C53**

S. No	Code	Ester*	% yield (Rf)#	IR (KBr Cm^{-1})	m.p. (˚C)
1	C1	B1	93.12 (0.68)	1757, 1717, 1642 and 1596	60-64
2	C2	B2	87.66 (0.70)	1729, 1708, 1644 and 1599	75-78
3	C3	B3	93.78 (0.68)	1756, 1712, 1638 and 1596	42-46
4	C4	B4	80.95 (0.71)	1756, 1707, 1651 and 1598	57-60
5	C5	B5	91.45 (0.8)	1756, 1715, 1639 and 1595	74-78
6	C6	B6	83.33 (0.8)	1748, 1712, 1645 and 1596	83-86
7	C7	B7	91.35 (0.79)	1732, 1638 and 1593	154-158
8	C8	B8	89 (0.82)	1760, 1731, 1633 and 1596	156-158
9	C9	B9	98.36 (0.75)	1750, 1710, 1629 and 1596	38-42
10	C10	B10	66.6 (0.78)	1756, 1732, 1640 and 1592	63-66
11	C11	B11	89.45 (0.68)	1774, 1709, 1635 and 1595	124-128
12	C12	B12	89.45 (0.72)	1745, 1710, 1640 and 1586	132-134
13	C13	B13	90.34 (0.68)	1754, 1719, 1641 and 1590	114-118
14	C14	B14	89.58 (0.66)	1745, 1710, 1643 and 1592	120-122
15	C15	B15	94.25(0.82)	1755, 1718, 1640 and 1592	38-42
16	C16	B16	92.8 (0.8)	1774, 1719, 1647 and 1596	67-70
17	C17	B17	89.54 (0.76)	1734, 1707, 1645 and 1598	124-128
18	C18	B18	96.6 (0.77)	1762, 1696, 1646 and 1600	87-90
19	C19	B19	98.36 (0.75)	1762, 1702, 1644 and 1596	126-130
20	C20	B20	92.57 (0.86)	1731, 1706, 1641 and 1599	148-152
21	C21	B21	93.44 (0.52)	1731, 1704, 1635 and 1595	44-48
22	C22	B22	68.42 (0.76)	1697, 1639 and 1595	147-150

S. No	Code	Ester*	% yield (Rf)#	IR (KBr Cm^{-1})	m.p. (˚C)
23	C23	B23	90.12 (0.42)	1755, 1715, 1640 and 1594	48-52
24	C24	B24	82.75 (0.72)	1738, 1709, 1646 and 1598	63-66
25	C25	B25	95.46 (0.84)	1757, 1706, 1640 and 1594	90-94
26	C26	B26	77.6 (0.76)	1755, 1704, 1634 and 1598	101-103
27	C27	B27	92.75 (0.69)	1757, 1706, 1644 and 1600	118-122
28	C28	B28	95.23%	1758, 1700, 1646 and 1601	100-105
29	C29	B29	94.56 (0.65)	1759, 1703, 1643 and 1604	195-199
30	C30	B30	86.57 (0.68)	1757, 1706, 1644 and 1600	133-136
31	C31	B31	85.42 (0.87)	1762, 1701, 1614 and 1598	46-50
32	C32	B32	78.3 (0.73)	1757, 1700, 1646 and 1603	187-190
33	C33	B33	89.46 (0.81)	1732, 1707, 1633 and 1596	166-170
34	C35	B35	87.36 (0.87)	1763, 1709. 1645 and 1592	115-119
35	C36	B36	85.11 (0.78)	1733, 1707, 1646 and 1599	121-124
36	C37	B37	88.56 (0.51)	1758, 1704, 1640 and 1592	101-105
37	C38	B38	79.16 (0.78)	1755, 1692, 1645 and 1600	113-116
38	C39	B39	92.56 (0.79)	1756, 1708, 1643 and 1592	80-84
39	C40	B40	94.97 (0.79)	1679, 1636 and 1598	77-80
40	C41	B41	90.06 (0.82)	1758, 1711, 1643 and 1596	38-40
41	C42	B42	75.10 (0.7)	1760, 1704, 1648 and 1599	79-81
42	C47	B47	90.36 (0.82)	1744, 1715, 1647 and 1595	108-112
43	C48	B48	77.34 (0.8)	1745, 1705, 1644 and 1596	117-120
44	C49	B49	91.23 (0.8)	1735, 1699, 1649 and 1593	130-134
45	C50	B50	84.74 (0.78)	1745, 1700, 1646 and 1596	153-156
46	C51	B51	92.85 (0.8)	1751, 1711, 1632 and 1597	128-132
47	C52	B52	78.6 (0. 8)	1745, 1707, 1643 and 1599	143-146
48	C53	B53	76.27 (0.78)	1753, 1700, 1644 and 1598	117-120

*Corresponding 4-hydroxy Imino-thiazolidine-4-one (B1-B53), # Toluene:Methanol (9:1),

5.8 Synthesis of derivatives 2-{4-[(2-imino-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetic acid (49-96).

5.8.1 Synthesis of 2-{4-[(2-((2-methoxyphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (49)

To the solution of ethyl 2-{4-[(2-((2-methoxyphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetate **C1**, (250 mg, 0.511 mmol) in methanol (5 ml), 10% aqueous potassium hydroxide solution (0.5 ml) was added dropwise and allowed to stir at room temperature for 1 hr. The reaction mixture was diluted with water and acidified with dilute hydrochloric acid (pH 2-3). The precipitated solid was collected by vacuum filtration and washed with distilled water. The desired product **49** (204 mg, 87.46 %) so obtained was dried in vacuum at 60 ° C for 24 h, **m.p.** 128-132°C.

Anal

TLC	:	Rf 0.15 (Toluene:Methanol) (9:1)
IR (cm^{-1})	:	3414, 1718, 1640 and 1594
^{1}H-NMR	:	δ 7.63 (*s*, 1*H*, C*H*), 6.92-7.54 (*m*, 13H, Ar*H*), 4.67 (*s*, 2H,CH_2) and 3.87 (*s*, 3H, CH_3).

5.8.2 2-{4-[(3-benzyl-2-((2-methoxyphenyl)imino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (50)

The title compound **50** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((2-methoxyphenyl)imino)-4-oxothiazolidin-5-ylidene)methyl]phenoxy}acetate **C2** (250 mg, 0.5 mmol) as the starting material to yield **50**, (180 mg, 76.58 %), **m.p.** 137-140°C.

Anal

TLC	:	Rf 0.4 (Toluene:Methanol) (9:1)
IR (cm^{-1})	:	3350, 1700, 1642 and 1601
^{1}H-NMR	:	δ 12.61 (*bs*, 1H, O*H*), 7.63 (*s*, 1*H*, C*H*), 7.57-7.59 (*d*, 2H, Ar*H*), 7.16-7.27 (*m*, 5H, Ar*H*), 6.91-6.93 (*d*, 2H, Ar*H*), 6.74-6.86 (*m*, 4H, Ar*H*), 4.67 (*s*, 2H, CH_2), 4.25 (*s*, 2H, CH_2) and 3.78 (*s*, 3H, CH_3).

5.8.3 2-{4-[(2-((4-methoxyphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene) methyl]phenoxy}acetic acid (51)

The title compound **51** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-(4-methoxyphenyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C3** (250 mg, 0.511 mmol) as the starting material to yield **51**, (213 mg, 90.48 %), **m.p.** 182-186°C.

Anal

TLC	:	Rf 0.3 (Toluene:Methanol) (9:1)
IR (cm^{-1})	:	3117, 1708, 1630 and 1597
^{1}H-NMR	:	δ 7.72 (*s*, 1*H*, C*H*), 6.80-7.40 (*m*, 13H, Ar*H*), 4.58 (*s*, 2H, CH_2) and 3.85 (*s*, 3H, CH_3).

5.8.4 2-{4-[(3-benzyl-2-((4-methoxyphenyl)imino)-4-oxothiazolidin-5-ylidene) methyl]phenoxy}acetic acid (52)

The title compound **52** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(2-(benzylimino)-3-(4-methoxyphenyl)-4-oxothiazolidin-5-ylidene)methyl]phenoxy}acetate **C4** (250 mg, 0.5 mmol) as the starting material to yield **52**, (181 mg, 76.92 %), **m.p.** 193-196°C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3471, 1704, 1634 and 1599
^{1}H-NMR : δ 13.00 (*bs*, 1H, O*H*), 7.63 (*s*, 1*H*, C*H*), 6.77-7.82 (*m*, 13H, Ar*H*), 5.10 (*s*, 2H, CH$_2$), 4.70 (*s*, 2H, CH$_2$) and 3.78 (*s*, 3H, CH$_3$).

5.8.5 2-{4-[((2-(naphthalen-1-ylimino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (53)

The title compound **53** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(2-(naphthalen-1-ylimino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetate **C5** (250 mg, 0.49 mmol) as the starting material to yield **53**, (206 mg, 87.36 %), **m.p.** 114-118°C.

Anal

TLC : Rf 0.26 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3410, 1713, 1639 and 1595
MS : m/z 480.6 (M^+), 494.9 $[M+NH_4]^+$
^{1}H-NMR : δ 6.69-7.97 (*m*, 17H, Ar*H*) and 4.44 (*s*, 2H, CH$_2$).

5.8.6 2-{4-[(3-benzyl-2-(naphthalen-1-ylimino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (54)

The title compound **54** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-(naphthalen-1-ylimino)-4-oxothiazolidin-5-ylidene)methyl]phenoxy}acetate **C6** (250 mg, 0.48 mmol) as the starting material to yield **54**, (206 mg, 87.36 %), **m.p.** 114-118°C.

Anal

TLC : Rf 0.45 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3300, 1727, 1694 and 1628

^{1}H-NMR : 7.86-7.88 (*d*, 1*H*, Ar*H*), 7.76 (*s*, 1*H*, C*H*), 7.69-7.71 (*d*, 1*H*, Ar*H*), 7.31-7.55 (*m*, 11H, Ar*H*),7.07-7.09 (*d*, 1*H*, Ar*H*), 6.94-6.97 (*d*, 2*H*, Ar*H*) 5.26 (*s*, 2H, CH_2) and 4.70 (*s*, 2H, CH_{2d})

5.8.7 2-{4-[(2-((4-fluorophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (55)

The title compound **55** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(2-((4-fluorophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetate **C7** (250 mg, 0.52 mmol) as the starting material to yield **55**, (200 mg, 85.13 %), **m.p.** 246-250°C.

Anal

TLC : Rf 0.22 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3121, 1719, 1641 and 1594
MS : m/z 448.5 (M^+)
^{1}H-NMR : δ 7.74 (*s*, 1*H*, C*H*), 6.64-7.56 (*m*, 13H, Ar*H*) and 4.64 (*s*, 2H, CH_2).

5.8.8 2-{4-[(3-benzyl-2-((4-fluorophenyl)imino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (56)

The title compound **56** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((4-fluorophenyl)imino)-4-oxothiazolidin-5-ylidene)methyl]phenoxy}acetate **C8** (250 mg, 0.50 mmol) as the starting material to yield **56**, (213 mg, 90 %), **m.p.** 246-250°C.

Anal

TLC : Rf 0.43 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3382, 1711, 1638 and 1597
MS : m/z 464.13 (M+2).

5.8.9 2-{4-[(4-oxo-3-phenyl-2-(p-tolylimino)thiazolidin-5-ylidene)methyl]phenoxy} acetic acid (57)

The title compound **57** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(4-oxo-3-phenyl-2-(p-tolylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C9** (250 mg, 0.53 mmol) as the starting material to yield **57**, (194 mg, 82.57 %), **m.p.** 184-188°C.

Anal

TLC : Rf 0.12 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3415, 1710, 1629 and 1596
^{1}H-NMR : δ 7.80 (*s*, 1*H*, C*H*), 6.82-7.77 (*m*, 13H, Ar*H*),4.66 (*s*, 2H, CH_2) and 2.56 (*s*, 3H, CH_3).

5.8.10 2-{4-[(3-benzyl-4-oxo-2-(p-tolylimino)thiazolidin-5-ylidene)methyl]phenoxy} acetic acid (58)

The title compound **58** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-4-oxo-2-(p-tolylimino)thiazolidin-5-yl)methyl]phenoxy}acetate **C10** (250 mg, 0.51 mmol) as the starting material to yield **58**, (223 mg, 95.23 %), **m.p.** 197-200°C.

Anal

TLC : Rf 0.37 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3310, 1728, 1635 and 1595
MS : m/z 457.3 (M-1).

5.8.11 2-{4-[(2-((3-nitrophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (59)

The title compound **59** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(2-((3-nitrophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetate **C11** (250 mg, 0.49 mmol) as the starting material to yield **59**, (206 mg, 87.43 %), **m.p.** 174-178°C.

Anal

TLC : Rf 0.24 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3391, 1710, 1640 and 1596
MS : m/z 475.9 (M^+)

5.8.12 2-{4-[(3-benzyl-2-((3-nitrophenyl)imino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (60)

The title compound **60** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((3-nitrophenyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C12** (250 mg, 0.48 mmol) as the starting material to yield **60**, (181 mg, 79.21 %), **m.p.** 174-178°C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3473, 1714, 1639 and 1602
MS : m/z 489.30 (M^+).

5.8.13 2-{4-[(2-((3-chlorophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (61)

The title compound **61** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(2-((3-chlorophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetate **C13** (250 mg, 0.50 mmol) as the starting material to yield **61**, (206 mg, 87.42 %), **m.p.** 185-189 ° C.

Anal

TLC : Rf 0.15 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3115, 1710, 1637 and 1596
^{1}H-NMR : δ 6.76-7.81 (*m*, 14H, Ar*H*) and4.68 (*s*, 2H, CH_2)

5.8.14 2-{4-[(3-benzyl-2-((3-chlorophenyl)imino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (62)

The title compound **62** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((3-chlorophenyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C14** (250 mg, 0.49 mmol) as the starting material to yield **62**, (204 mg, 86.48 %), **m.p.** 193-196 ° C.

Anal

TLC : Rf 0.32 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3473, 1714, 1639 and 1602
^{1}H-NMR : δ 7.74 (*s*, 1*H*, C*H*), 6.88-7.48 (*m*, 13*H*, Ar*H*), 5.09 (*s*, 2H, CH_2) and 4.62 (*s*, 2H, CH_2)

5.8.15 2-{4-[(2-((3-bromophenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (63)

The title compound **63** was synthesized as per the method described for compound **49** taking 2-{4-[(3-(3-bromophenyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetic acid **C15** (250 mg, 0.46 mmol) as the starting material to yield **63**, (210 mg, 88.52 %), **m.p.** 66-70 ° C.

Anal

TLC : Rf 0.22 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3122, 1716, 1638 and 1591
^{1}H-NMR : δ 7.76 (*s*, 1H, C*H*), 6.92-7.57 (*m*, 13H, Ar*H*) and 4.66 (*s*, 2H, CH_2)

5.8.16 2-{4-[(3-benzyl-2-((3-bromophenyl)imino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (64)

The title compound **64** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((3-bromophenyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C16** (250 mg, 0.45 mmol) as the starting material to yield **64**, (178 mg, 75.67 %), **m.p.** 75-78 °C.

Anal

TLC : Rf 0.36 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3319, 1708, 1632 and 1590
MS : m/z 524.8 (M+1)
^{1}H-NMR : δ 6.62-7.84 (*m*, 14*H*, Ar*H*), 5.61 (*s*, 2H, CH_2) and 4.34 (*s*, 2H, CH_2)

5.8.17 2-{4-[(2-(cyclohexylimino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (65)

The title compound **65** was synthesized as per the method described for compound **49** taking Ethyl 2-{4-[(3-cyclohexyl-4-oxo-2-(phenyl imino)-1,3-thiazolidin-5-ylidene)methyl]phenoxy}acetate **C17** (250 mg, 0.53 mmol) as the starting material to yield **65**, (203 mg, 86.45 %), **m.p.** 240-244 °C.

Anal

TLC : Rf 0.17 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3121, 1716, 1638 and 1591
^{1}H-NMR : δ 7.67 (*s*, 1H, C*H*), 7.59-7.60 (*d*, 2H, Ar*H*), 7.47-7.50 (*t*, 2H, Ar*H*), 7.39-7.42 (*m*, 1H, Ar*H*), 7.33-7.35 (*d*, 2H, Ar*H*), 7.05-7.07 (*d*, 2H, Ar*H*),4.71 (*s*, 2H, CH_2) and 1.19-1.72 (*m*, 10H, CH_2)

5.8.18 2-{4-[(3-benzyl-2-(cyclohexylimino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (66)

The title compound **66** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-(cyclohexylimino)-4-oxothiazolidin-5-

yl)methyl]phenoxy}acetate **C18** (250 mg, 0.52 mmol) as the starting material to yield **66**, (220 mg, 94.11 %), **m.p.** 213-216˚C.

Anal

TLC : Rf 0.42 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3315, 1715, 1632 and 1597
MS : m/z 451.1 (M+1)

5.8.19 2-{4-[(3-benzyl-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy} acetic acid (67)

The title compound **67** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C19** (250 mg, 0.53 mmol) as the starting material to yield **67**, (223 mg, 95 %), **m.p.** 203-205 ˚C.

Anal

TLC : Rf 0.25 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3382, 1707, 1638 and 1594
MS : m/z 451.1 (M+1)
^{1}H-NMR : δ 13.05 (*bs*, 1H, O*H*$_g$), 7.70 (*s*, 1H, C*H*), 7.26-7.45 (*m*, 9H, Ar*H*), 7.15-7.19 (*t*, 1H, Ar*H*), 6.96-6.99 (*t*, 4H, Ar*H*), 5.12 (*s*, 2H, CH$_2$) and 4.66 (*s*, 2H, C*H*$_2$)

5.8.20 2-{4-[(4-oxo-3-phenethyl-2-(phenylimino)thiazolidin-5-ylidene)methyl] phenoxy}acetic acid (68)

The title compound **68** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(4-oxo-3-phenethyl-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C20** (250 mg, 0.51 mmol) as the starting material to yield **68**, (205mg, 87.26 %), **m.p.** 227-230 ˚C.

Anal

TLC : Rf 0.26 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3422, 1702, 1635 and 1570
1H-NMR : δ 7.64 (*s*, 1H, C*H*), 6.90-7.43 (*m*, 14H, Ar*H*), 4.63 (*s*, 2H, CH$_2$), 4.17 (*t*, 2H, CH$_2$) and 3.06 (*t*, 2H, C*H*$_2$)

5.8.21 2-{4-[(3-(2-morpholinoethyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene) methyl]phenoxy}acetic acid (69)

The title compound **69** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-(2-morpholinoethyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C21** (250 mg, 0.50 mmol) as the starting material to yield **69**, (208 mg, 88.46 %), **m.p.** 244-248 °C.

Anal

TLC : Rf 0.26 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3416, 1701, 1643 and 1595
^{1}H-NMR : δ 7.67 (*s*, 1H, C*H*), 7.38-7.45 (*m*, 4H, Ar*H*), 7.16-7.20 (*t*, 1H, Ar*H*), 6.97-6.99 (*m*, 4H, Ar*H*), 4.66 (*s*, 2H, CH$_2$), 4.04-4.07 (*t*, 2H, C*H*$_2$), 3.57-3.59 (*m*, 8H, C*H*$_2$) and 2.70-2.73 (*t*, 2H, C*H*$_2$)

5.8.22 2-{4-[(2-(benzylimino)-3-(2-morpholinoethyl)-4-oxothiazolidin-5-ylidene) methyl] phenoxy}acetic acid (70)

The title compound **70** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((2-morpholinoethyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C22** (250 mg, 0.50 mmol) as the starting material to yield **70**, (168 mg, 69.56 %), **m.p.** 223-226 °C.

Anal

TLC : Rf 0.36 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3496, 1728, 1645 and 1595
^{1}H-NMR : δ 7.63 (*s*, 1H, C*H*), 7.50-7.52 (*d*, 2H, Ar*H*), 7.19-7.32 (*m*, 5H, Ar*H*), 6.98-7.00 (*d*, 2H, Ar*H*), 4.63 (*s*, 2H, CH$_2$), 4.55 (*s*, 2H, C*H*$_2$), 4.10 (b*s*, 2H, C*H*$_2$), 3.62-3.69 (b*s*, 6H, C*H*$_2$) and 3.30 (*s*, 4H, C*H*$_2$)

5.8.23 2-{4-[(4-oxo-3-phenyl-2-(pyridin-3-ylimino)thiazolidin-5-ylidene)methyl] phenoxy}acetic acid (71)

The title compound **71** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(4-oxo-3-phenyl-2-(pyridin-3-ylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C23** (250 mg, 0.54 mmol) as the starting material to yield **71**, (198 mg, 84.52 %), **m.p.** >260 °C.

Anal

TLC : Rf 0.12 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3396, 1705, 1648 and 1618
MS : 431.80 (M+).

5.8.24 2-{4-[(3-benzyl-4-oxo-2-(pyridin-3-ylimino)thiazolidin-5-ylidene)methyl] phenoxy}acetic acid (72)

The title compound **72** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-4-oxo-2-(pyridin-3-ylimino)thiazolidin-5-yl)methyl]phenoxy}acetate **C24** (250 mg, 0.53 mmol) as the starting material to yield **72**, (185 mg, 78.6 %), **m.p.** 215-218 °C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 1709, 1642 and 1600
MS : m/z 444.1 (M-1)

5.8.25 2-{4-[(4-oxo-3-phenyl-2-(propylimino)thiazolidin-5-ylidene)methyl]phenoxy} acetic acid (73)

The title compound **73** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(4-oxo-2-(phenylimino)-3-propylthiazolidin-5-ylidene)methyl]phenoxy}acetate **C25** (250 mg, 0.58 mmol) as the starting material to yield **73**, (201 mg, 86.26 %), **m.p.** >260 °C.

Anal

TLC : Rf 0.28 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3396, 1707, 1678 and 1640
^{1}H-NMR : δ 7.64 (*s*, 1H, C*H*), 7.37-7.41 (*m*, 4H, Ar*H*), 7.16-7.19 (*m*, 1H, Ar*H*), 6.92-6.99 (*m*, 4H, Ar*H*), 4.42 (*s*, 2H, CH_2), 3.87-3.90 (*t*, 2H, CH_2), 1.76-1.78 (*m*, 2H, CH_2) and 0.95-0.99 (*t*, 3H, CH_3)

5.8.26 2-{4-[(3-benzyl-4-oxo-2-(propylimino)thiazolidin-5-ylidene)methyl]phenoxy} acetic acid (74)

The title compound **74** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-4-oxo-2-(propylimino)thiazolidin-5-

yl)methyl]phenoxy}acetate **C26** (250 mg, 0.56 mmol) as the starting material to yield **74**, (183 mg, 78.20 %), **m.p.** 235-238°C.

Anal

TLC : Rf 0.4 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3112, 1702, 1646 and 1599
^{1}H-NMR : δ 7.65 (*s*, 1H, C*H*), 7.56-7.58 (*d*, 2H, Ar*H*), 7.22-7.36 (*m*, 5H, Ar*H*), 7.03-7.05 (*d*, 2H, Ar*H*), 4.72 (*s*, 2H, CH$_2$), 4.61 (*s*, 2H, C*H*$_2$), 3.79-3.82 (*t*, 2H, C*H*$_2$), 1.61-1.72 (*m*, 2H, C*H*$_2$) and 0.88-0.92 (*m*, 3H, C*H*$_3$)

5.8.27 2-{4-[(2-(isopropylimino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (75)

The title compound **75** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-isopropyl-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C27** (250 mg, 0.58 mmol) as the starting material to yield **75**, (192 mg, 82.34 %), **m.p.** 230-232°C.

Anal

TLC : Rf 0.25 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3130, 1714, 1644 and 1598
^{1}H-NMR : δ 7.66 (*s*, 1H, C*H*), 7.39-7.41 (*m*, 4H, Ar*H*), 7.16-7.19 (*m*, 1H, Ar*H*), 6.93-6.99 (*m*, 4H, Ar*H*), 4.43 (*s*, 2H, CH$_2$), 1.74-1.79 (*m*, 1H, CH$_2$) and 0.95-0.98 (*t*, 6H, C*H*$_3$)

5.8.28 2-{4-[(3-benzyl-2-(isopropylimino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (76)

The title compound **76** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-(isopropylimino)-4-oxothiazolidin-5-ylidene)methyl]phenoxy}acetate **C28** (250 mg, 0.57 mmol) as the starting material to yield **76**, (183 mg, 78.20 %), **m.p.** 235-238°C.

Anal

TLC : Rf 0.4 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3396, 1706, 1641 and 1598
^{1}H-NMR : δ 7.61 (*s*, 1H, C*H*), 7.50-7.52 (*d*, 2H, Ar*H*), 7.22-7.38 (*m*, 5H, Ar*H*), 7.00-7.02 (*d*, 2H, Ar*H*), 4.94 (*s*, 2H, CH$_2$), 4.64 (*s*, 2H, C*H*$_2$), 3.51-3.57 (*m*, 1H, C*H*) and1.18-1.20 (*d*, 6H, C*H*$_3$)

5.8.29 2-{4-[(2-(cyclopropylimino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (77)

The title compound **77** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-cyclopropyl-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C29** (250 mg, 0.59 mmol) as the starting material to yield **77**, (192 mg, 82.42 %), **m.p.** 240-242°C.

Anal

TLC : Rf 0.2 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3127, 1711, 1641 and 1599
MS : m/z 395.2(M^{+}).
^{1}H-NMR : δ 7.63 (*s*, 1H, C*H*), 7.34-7.55 (*m*, 5H, Ar*H*), 7.25-7.27 (*d*, 2H, Ar*H*), 6.99-7.02 (*d*, 2H, Ar*H*), 4.66 (*s*, 2H, CH$_2$), 2.72-2.75 (*m*, 1H, CH), 0.77-0.81 (*m*, 2H, CH$_2$), and 0.54-0.57(*m*, 2H, C*H*$_2$)

5.8.30 2-{4-[(3-benzyl-2-(cyclopropylimino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (78)

The title compound **78** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-(cyclopropylimino)-4-oxothiazolidin-5-ylidene)methyl]phenoxy}acetate **C30** (250 mg, 0.57 mmol) as the starting material to yield **78**, (184 mg, 78.7 %), **m.p.** 255-258 °C.

Anal

TLC : Rf 0.39 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3400, 1706, 1641 and 1598
MS : m/z 406.99 (M-1)

5.8.31 2-{4-[(2-(butylimino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy} acetic acid (79)

The title compound **79** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-butyl-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C31** (250 mg, 0.57 mmol) as the starting material to yield **79**, (211 mg, 90.22 %), **m.p.** 199-201 °C.

Anal

TLC : Rf 0.31 (Toluene:Methanol) (9:1)

IR (cm^{-1}) : 3126, 1703, 1638 and 1597
^{1}H-NMR : δ 7.66 (*s*, 1H, C*H*), 7.37-7.45 (*m*, 4H, Ar*H*), 7.16-7.19 (*m*, 1H, Ar*H*), 6.98-7.00 (*m*, 4H, Ar*H*), 4.67 (*s*, 2H, CH$_2$), 3.91-3.94 (*t*, 2H, CH$_2$), 1.71-1.74 (*m*, 2H, CH$_2$), 1.37-1.42 (*m*, 2H, CH$_2$) and 0.95-0.99 (*t*, 3H, C*H*$_3$)

5.8.32 2-{4-[(3-benzyl-2-(butylimino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (80)

The title compound **80** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-(butylimino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C32** (250 mg, 0.55 mmol) as the starting material to yield **80**, (180 mg, 76.73 %), **m.p.** 223-226˚C.

Anal

TLC : Rf 0.42 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3120, 1701, 1636 and 1600
^{1}H-NMR : δ 6.76-7.81 (*m*, 10H, C*H*), 4.57 (*s*, 2H, CH$_2$), 4.23 (*s*, 2H, C*H*$_2$), 3.02-3.07 (*m*, 2H, C*H*), 1.24-1.41 (*m*, 4H, C*H*$_2$) and 0.87-0.94 (*m*, 3H, C*H*$_3$)

5.8.33 2-{4-[(3-(4-methoxybenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene) methyl]phenoxy}acetic acid (81)

The title compound **81** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-(4-methoxybenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C33** (250 mg, 0.49 mmol) as the starting material to yield **81**, (204 mg, 86.72 %), **m.p.** 188-190˚C.

Anal

TLC : Rf 0.29 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3124, 1708, 1639 and 1595
^{1}H-NMR : δ 7.59 (*s*, 1H, C*H*), 7.29-7.38 (*m*, 6H, Ar*H*), 7.11-7.12 (*t*, 1H, Ar*H*), 6.87-6.92 (*m*, 4H, Ar*H*), 6.78-6.80 (*d*, 2H, Ar*H*), 4.99 (*s*, 2H, CH$_2$), 4.55 (*s*, 2H, CH$_2$) and 3.70 (*s*, 3H, C*H*$_3$)

5.8.34 2-{4-[(3-(2-chlorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl] phenoxy}acetic acid (82)

The title compound **82** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-(2-chlorobenzyl)-4-oxo-2-(phenylimino) thiazolidin-5-ylidene)methyl]phenoxy}acetate **C35** (250 mg, 0.49 mmol) as the starting material to yield **82**, (194 mg, 82.46 %), **m.p.** 220-224˚C.

Anal

TLC : Rf 0.28 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3310, 1709, 1641 and 1594
^{1}H-NMR : δ 7.59 (*s*, 1H, C*H*), 7.29-7.38 (*m*, 6H, Ar*H*), 7.11-7.12 (*t*, 1H, Ar*H*), 6.87-6.92 (*m*, 4H, Ar*H*), 6.78-6.80 (*d*, 2H, Ar*H*), 4.99 (*s*, 2H, CH_2), 4.55 (*s*, 2H, CH_2) and 3.70 (*s*, 3H, CH_3)

5.8.35 2-{4-[(2-(benzylimino)-3-(2-chlorobenzyl)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (83)

The title compound **83** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((2-chlorobenzyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C36** (250 mg, 0.47 mmol) as the starting material to yield **83**, (202 mg, 85.71 %), **m.p.** 235-238˚C.

Anal

TLC : Rf 0.36 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3310, 1709, 1623 and 1598
MS : m/z 495 (M$^+$) and 517 (M+Na)

5.8.36 2-{4-[(4-oxo-2-(phenylimino)-3-(pyridin-3-ylmethyl)thiazolidin-5-ylidene) methyl]phenoxy}acetic acid (84)

The title compound **84** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(4-oxo-2-(phenylimino)-3-(pyridin-3-ylmethyl)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C37** (250 mg, 0.53 mmol) as the starting material to yield **84**, (222 mg, 94.56 %), **m.p.** 198-202˚C.

Anal

TLC : Rf 0.12 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3151, 1705, 1638 and 1594
^{1}H-NMR : δ 8.66 (*s*, 1H, Ar*H*), 8.43-8.44 (*d*, 1H, Ar*H*), 7.78-7.79 (*d*, 1H, Ar*H*), 7.50 (*s*, 1H, C*H*), 7.22-7.28 (*m*, 3H, Ar*H*), 7.13-7.15 (*d*, 2H, Ar*H*), 7.04-7.08 (*t*, 1H, Ar*H*), 6.86-6.88 (*d*, 2H, Ar*H*), 6.77-6.79 (*d*, 2H, ArH_c), 5.04 (*s*, 2H, CH_2) and 4.26 (*s*, 2H, CH_2)

5.8.37 2-{4-[(2-(benzylimino)-4-oxo-3-(pyridin-3-ylmethyl)thiazolidin-5-ylidene) methyl]phenoxy}acetic acid (85)

The title compound **85** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-4-oxo-2-((pyridin-3-ylmethyl)imino)thiazolidin-5-yl)methyl]phenoxy}acetate **C38** (250 mg, 0.51 mmol) as the starting material to yield **85**, (210 mg, 89.5 %), **m.p.** 207-210°C.

Anal

TLC : Rf 0.39 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3185, 1705, 1638 and 1594
MS : m/z 459.73 (M^+)

5.8.38 2-{4-[(4-oxo-3-phenyl-2-(o-tolylimino)thiazolidin-5-ylidene)methyl]phenoxy} acetic acid (86)

The title compound **86** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(4-oxo-3-phenyl-2-(o-tolylimino)thiazolidin-5-ylidene)methyl]phenoxy}acetate **C39** (250 mg, 0.53 mmol) as the starting material to yield **86**, (203 mg, 86.53 %), **m.p.** 226-230°C.

Anal

TLC : Rf 0.23 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3127, 1719, 1644 and 1595
^{1}H-NMR : δ 7.67 (*s*, 1H, C*H*), 6.78-7.52 (*m*, 13H, Ar*H*), 4.59 (*s*, 2H, CH_2) and 2.22 (*s*, 3H, CH_3)

5.8.39 2-{4-[(3-benzyl-4-oxo-2-(o-tolylimino)thiazolidin-5-ylidene)methyl]phenoxy} acetic acid (87)

The title compound **87** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-4-oxo-2-(o-tolylimino)thiazolidin-5-yl)methyl]phenoxy}acetate **C40** (250 mg, 0.51 mmol) as the starting material to yield **87**, (206 mg, 87.36 %), **m.p.** 233-236°C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3200, 1717, 1643 and 1601
MS : m/z 459.89 (M^+)

5.8.40 2-{4-[(2-((4-ethylphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl] phenoxy}acetic acid (88)

The title compound **88** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(2-((4-ethylphenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene)methyl]phenoxy}acetate **C41** (250 mg, 0.51 mmol) as the starting material to yield **88**, (205 mg, 87.36 %), **m.p.** 244-248 °C.

Anal

TLC : Rf 0.28 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3128, 1715, 1634 and 1595
^{1}H-NMR : δ 7.79 (*s*, 1H, C*H*), 6.78-7.50 (*m*, 13H, Ar*H*), 4.58 (*s*, 2H, CH_2), 2.63-2.69 (*m*, 2H, CH_2) and 1.16-1.24 (*m*, 3H, CH_3)

5.8.41 2-{4-[(3-benzyl-2-((4-ethylphenyl)imino)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (89)

The title compound **89** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((4-ethylphenyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C42** (250 mg, 0.5 mmol) as the starting material to yield **89**, (186 mg, 78.94 %), **m.p.** 253-256 °C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3140, 1715, 1643 and 1595
^{1}H-NMR : δ 12.83 (*bs*, 1H, O*H*), 7.77 (*s*, 1H, C*H*), 6.45-7.63 (*m*, 13H, Ar*H*), 4.68 (*s*, 2H, CH_2), 4.31 (*s*, 2H, CH_2), 2.50-2.56 (*m*, 2H, C*H*) and 1.12-1.18 (*m*, 4H, CH_2)

5.8.42 2-{4-[(3-(3-chlorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene) methyl]phenoxy}acetic acid (90)

The title compound **90** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-(3-chlorobenzyl)-4-oxo-2-(phenylimino) thiazolidin-5-ylidene)methyl]phenoxy}acetate **C47** (250 mg, 0.5 mmol) as the starting material to yield **90**, (192 mg, 81.45 %), **m.p.** 187-191 °C.

Anal

TLC : Rf 0.14 (Toluene:Methanol) (9:1)

IR (cm^{-1}) : 3126, 1708, 1638 and 1595
^{1}H-NMR : δ 7.64 (*s*, 1H, C*H*), 7.48 (*s*, 1H, Ar*H*), 7.27-7.40 (*m*, 7H, Ar*H*), 7.13-7.17 (*t*, 1H, Ar*H*), 6.88-6.96 (*m*, 3H, Ar*H*), 5.09 (*s*, 2H, CH_2) and 4.44 (*s*, 2H, CH_2)

5.8.43 2-{4-[(2-(benzylimino)-3-(3-chlorobenzyl)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (91)

The title compound **91** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((3-chlorobenzyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C48** (250 mg, 0.48 mmol) as the starting material to yield **91**, (202 mg, 85.62 %), **m.p.** 201-204°C.

Anal

TLC : Rf 0.33 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3121, 1733, 1695 and 1647
^{1}H-NMR : δ 7.70 (*s*, 1H, C*H*), 7.55 (*s*, 1H, Ar*H*), 7.18-7.41 (*m*, 10H, Ar*H*), 7.00-7.03 (*d*, 1H, Ar*H*), 6.42-6.45 (*m*, 1H, Ar*H*), 5.02 (*s*, 2H, CH_2), 4.69 (*s*, 2H, CH_2) and 4.28 (*s*, 2H, CH_2)

5.8.44 2-{4-[(3-(4-chlorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl] phenoxy}acetic acid (92)

The title compound **92** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-(4-chlorobenzyl)-4-oxo-2-(phenylimino) thiazolidin-5-ylidene)methyl]phenoxy}acetate **C49** (250 mg, 0.49 mmol) as the starting material to yield **92**, (197 mg, 83.49 %), **m.p.** 185-189°C.

Anal

TLC : Rf 0.22 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3408, 1709, 1641 and 1595
^{1}H-NMR : δ 6.86-7.69 (*m*, 14H, C*H*&Ar*H*), 5.03(*s*, 2H, CH_2) and 4.46 (*s*, 2H, CH_2)

5.8.45 2-{4-[(2-(benzylimino)-3-(4-chlorobenzyl)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (93)

The title compound **93** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((4-chlorobenzyl)imino)-4-

oxothiazolidin-5-yl)methyl]phenoxy}acetate **C50** (250 mg, 0.48 mmol) as the starting material to yield **93**, (196 mg, 82.97 %), **m.p.** 197-200°C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3122, 1694, 1645 and 1595
^{1}H-NMR : δ 7.69 (*s*, 1H, C*H*), 7.53-7.55 (*d*, 2H, Ar*H*), 7.23-7.36 (*m*, 9H, Ar*H*), 7.01-7.03 (*d*, 2H, Ar*H*), 5.03 (*s*, 2H, CH$_2$), 4.67 (*s*, 2H, CH$_2$) and 4.60 (*s*, 2H, CH$_2$)

5.8.46 2-{4-[(3-(4-fluorobenzyl)-4-oxo-2-(phenylimino)thiazolidin-5-ylidene)methyl] phenoxy}acetic acid (94)

The title compound **94** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-(4-fluorobenzyl)-4-oxo-2-(phenylimino) thiazolidin-5-ylidene)methyl]phenoxy}acetate **C51** (250 mg, 0.5 mmol) as the starting material to yield **94**, (206 mg, 87.42 %), **m.p.** >270°C.

Anal

TLC : Rf 0.18 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3418, 1700, 1649 and 1595
^{1}H-NMR : δ 6.91-7.67 (*m*, 14H, C*H*& Ar*H*), 5.03(*s*, 2H, CH$_2$) and 4.40 (*s*, 2H, CH$_2$)

5.8.47 2-{4-[(2-(benzylimino)-3-(4-fluorobenzyl)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (95)

The title compound **95** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((4-fluorobenzyl)imino)-4-oxothiazolidin-5-yl)methyl]phenoxy}acetate **C52** (250 mg, 0.49 mmol) as the starting material to yield **95**, (206 mg, 87.42 %), **m.p.** >270°C.

Anal

TLC : Rf 0.42 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3112, 1700, 1649 and 1595
^{1}H-NMR : δ 7.69 (*s*, 1H, C*H*), 7.54-7.56 (*d*, 2H, Ar*H*), 7.02-7.43 (*m*, 10H, Ar*H*), 5.00 (*s*, 2H, CH$_2$), 4.69 (*s*, 2H, CH$_2$) and 4.61 (*s*, 2H, CH$_2$)

5.8.48 2-{4-[(2-(benzylimino)-3-(3,4-dimethoxybenzyl)-4-oxothiazolidin-5-ylidene)methyl] phenoxy}acetic acid (96)

The title compound **96** was synthesized as per the method described for compound **49** taking ethyl 2-{4-[(3-benzyl-2-((3,4-dimethoxyphenyl)imino)-4-oxothiazolidin-5-ylidene)methyl]phenoxy}acetate **C53** (250 mg, 0.5 mmol) as the starting material to yield **96**, (163 mg, 69.44 %), **m.p.** 215-218 ˚C.

Anal

TLC : Rf 0.4 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3118, 1697, 1624 and 1586
MS : m/z 418.26 (M$^+$)

5.9 Synthesis of 4-{[4-oxo-3-phenylthiazolidin-2-ylidene]amino}benzoic acid (D).

To a solution of Phenylisothiocyanate (9.86 g, 8.70 mL, 72.91 mmol) in methanol (100 mL), 4-Aminobenzoic acid (10 g, 72.91 mmol) was added portion wise at 20°C and allowed to stirr at 20°C for 1hr. The reaction mixture was cooled to 0°C before ethyl chloroacetate (14.72 g, 6.35 mL, 72.91 mmol) was added carefully such that the temperature does not rise above 5°C. The reaction mixture was allowed to stir at 0°C for 15 min. before pyridine (11.53 g, 11.77 mL, 145.83 mmol) was added at 0°C and stirring was continued for 3 hrs. The resulting fine suspension was diluted with water (100 mL) and the aqueous layer was extracted with DCM (50 mL X 3). The combined organic extract containing crude product was dried over Na_2SO_4, filtered, and concentrated. The solid obtained was dried in vacuum dessicator to give **D** as white solid (14.22 g, 62.48 %), **m.p.** 195-199 ˚C.

Anal

TLC : Rf 0.24 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 1716, 1686, 1631 and 1592
^{1}H-NMR : 7.94-7.96 (*d*, 2H, Ar*H*), 7.37-7.55 (*m*, 5H, Ar*H*), 6.92-6.95 (*d*, 2H, Ar*H*) and 4.08 (*s*, 2H, C*H*).

5.10 Synthesis of derivatives of 4-{[5-ylidene-4-oxo-3-phenylthiazolidin-2-ylidene]amino}benzoic acid (97-114).

5.10.1 4-{[5-benzylidene-4-oxo-3-phenylthiazolidin-2-ylidene]amino]benzoic acid (97)

The title compound **97** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with benzaldehyde (84.93 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **97**, (185 mg, 72.44 %), **m.p.** 247-249˚C.

Anal

TLC : Rf 0.46 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1718, 1687, 1640 and 1596
^{1}H-NMR : δ 7.93-7.95 (*d*, 2H, Ar*H*), 7.75 (*s*, 1H, CH_2), 7.34-7.56 (*m*, 10H, Ar*H*) and 6.94-6.96 (*d*, 2H, Ar*H*)

5.10.2 4-{[5-(4-chlorobenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino} benzoic acid (98)

The title compound **98** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 4-chlorobenzaldehyde (112.5 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **98**, (244 mg, 70.23 %), **m.p.** >270˚C.

Anal

TLC : Rf 0.31 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3122, 1715, 1681, 1632 and 1586
^{1}H-NMR : δ 12.69 (*bs*, 1H, O*H*), 7.96-7.98 (*d*, 2H, Ar*H*), 7.81 (*s*, 1H, CH_2), 7.45-7.58 (*m*, 8H, Ar*H*) and 7.02-7.04 (*d*, 2H, Ar*H*)

5.10.3 4-{[5-(4-(dimethylamino)benzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene] amino}benzoic acid (99)

The title compound **99** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 4-(dimethylamino)benzaldehyde (120 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **99**, (244 mg, 68.72 %), **m.p.** 188-190˚C.

Anal

TLC : Rf 0.26 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3386, 1710, 1636 and 1591
^{1}H-NMR : δ 7.91-7.93 (*d*, 2H, Ar*H*), 6.92-7.68 (*m*, 12H, Ar*H*) 3.06 (*s*, 3H, NC*H*3) and 3.03 (*s*, 3H, NC*H*3)

5.10.4 4-{[-5-(4-nitrobenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino} benzoic acid (100)

The title compound **100** was synthesized as per the method described for compound **1** by replacing 4-formylbenzoic acid with 4-nitrobenzaldehyde (121 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **100**, (248 mg, 69.65 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.31 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3123, 1717, 1683, 1630 and 1585
^{1}H-NMR : δ 12.64 (*bs*, 1H, O*H*) 8.27-8.29 (*d*, 2H, Ar*H*), 7.98-8.00 (*d*, 2H, Ar*H*),7.90 (*s*, 1H, C*H*), 7.75-7.77 (*d*,2H, Ar*H*), 7.48-7.59 (*m*, 5H, Ar*H*) and 7.02-7.04 (*d*,2H, Ar*H*)

5.10.5 4-{[5-(4-methoxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino} benzoic acid (101)

The title compound **101** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 4-methoxybenzaldehyde (110 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **101**, (260 mg, 75.46 %), **m.p.** 133-137 °C.

Anal

TLC : Rf 0.32 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3126, 1715, 1689, 1639 and 1595
^{1}H-NMR : δ 12.67 (*bs*, 1H, O*H*),7.97-7.99 (*d*, 2H, Ar*H*), 7.77 (*s*, 1H, C*H*),7.41-7.57 (*m*, 9H, Ar*H*) 7.01-7.03 (*d*, 2H, Ar*H*) and 3.81 (*s*, 3H, OC*H*3)

5.10.6 4-{[5-(4-methylbenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino] benzoic acid (102)

The title compound **102** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 4-methylbenzaldehyde (96.12 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **102**, (254 mg, 76.85 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.33 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3122, 1710, 1680, 1630 and 1583
^{1}H-NMR : δ 12.71 (*bs*, 1H, O*H*) 7.97-7.99 (*d*, 2H, Ar*H*), 7.78 (*s*, 1H, C*H*), 7.26-7.58 (*m*, 9H, Ar*H*), 7.01-7.04 (*d*, 2H, Ar*H*) and 2.36 (*s*, 3H, C*H*$_3$)

5.10.7 4-{[5-(4-fluorobenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino] benzoic acid (103)

The title compound **103** was synthesized as per the method described for compound 1 replacing 4-formylbenzoic acid with 4-fluorobenzaldehyde (99.3 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **103**, (239 mg, 71.45 %), **m.p.** 243-247 °C.

Anal

TLC : Rf 0.28 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3124, 1718, 1687, 1646 and 1596
^{1}H-NMR : δ 12.78 (*bs*, 1H, O*H*), 7.96-7.98 (*d*, 2H, Ar*H*), 7.82 (*s*, 1H, C*H*), 7.46-7.61 (*m*, 7H, Ar*H*), 7.23-7.28 (*m*, 2H, Ar*H*) and 7.02-7.04 (*d*, 2H, Ar*H*)

5.10.8 4-{[5-(4-hydroxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino] benzoic acid (104)

The title compound **104** was synthesized as per the method described for compound 1 replacing 4-formylbenzoic acid with 4-hydroxybenzaldehyde (97.7 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **104**, (245 mg, 73.56 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.16 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3391, 1705, 1638 and 1592
^{1}H-NMR : δ 7.96-7.98 (*d*, 2H, Ar*H*), 7.72 (*s*, 1H, C*H*), 7.36-7.57 (*m*, 9H, Ar*H*) and 6.87-6.89 (*d*, 2H, Ar*H*)

5.10.9 4-{[5-(3,4-dimethoxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene] amino]benzoic acid (105)

The title compound **105** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 3,4-dimethoxybenzaldehyde (133 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **105**, (290mg, 78.42 %), **m.p.** 195-198˚C.

Anal

TLC : Rf 0.33 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3130, 1715, 1638 and 1593
^{1}H-NMR : δ 7.96-7.99 (*d*, 2H, Ar*H*), 7.78 (*s*, 1H, C*H*), 7.37-6.92 (*m*, 10H, Ar*H*), 3.84 (*s*, 3H, OC*H*$_3$) and 3.81 (*s*, 3H, OC*H*$_3$)

5.10.10 4-{[4-oxo-3-phenyl-5-(3-phenylallylidene)thiazolidin-2-ylidene]amino} benzoic acid (106)

The title compound **106** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with cinnamaldehyde (106 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **106**, (262 mg, 76.85 %), **m.p.** 258-262˚C.

Anal

TLC : Rf 0.37 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1708, 1684, 1632 and 1583
^{1}H-NMR : δ 6.90-8.72 (*m*, 17H, Ar*H*,C*H*).

5.10.11 4-{[5-(thiophen-2-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene] amino}benzoic acid (107)

The title compound **107** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 2-thiophenaldehyde (90 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **107**, (228 mg, 70.34 %), **m.p.** 227-231˚C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3091, 1705, 1640 and 1594
^{1}H-NMR : δ 12.39 (*bs*, 1H, O*H*), 8.07 (*s*, 1H, C*H*) and 6.93-7.99 (*m*, 12H, Ar*H*).

5.10.12 4-{[5-(furan-2-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino} benzoic acid (108)

The title compound **108** was synthesized as per the method described for compound 1 replacing 4-formylbenzoic acid with furfuraldehyde (77 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **108**, (224 mg, 71.68 %), **m.p.** 157-161 °C.

Anal

TLC : Rf 0.36 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3391, 1715, 1687, 1637 and 1593
MS : m/z 391 (M^+).

5.10.13 4-{[5-(naphthalen-1-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene] amino}benzoic acid (109)

The title compound **109** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 1-naphthaldehyde (125 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **109**, (249 mg, 69.26 %), **m.p.** 135-139 °C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3128, 1716, 1686, 1639 and 1593
^{1}H-NMR : δ 12.71 (*bs*, 1H, O*H*) and 6.93-8.47 (*m*, 17H, Ar*H*)

5.10.14 4-{[5-((1,1'-biphenyl)-4-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene] amino}benzoic acid (110)

The title compound **110** was synthesized as per the method described for compound 1 replacing 4-formylbenzoic acid with biphenyl-4-carboxaldehyde (146 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **110**, (299 mg, 78.42 %), **m.p.** >270 °C.

Anal

TLC : Rf 0.48 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3391, 1711, 1688, 1633 and 1589
MS : m/z 476.9 (M^+).
^{1}H-NMR : δ 12.60 (*bs*, 1H, O*H*), 6.97-8.99 (*d*, 2H, Ar*H*), 7.85 (*s*, 1H, C*H*),

7.35-7.77 (*m*, 14H, Ar*H*), and 7.04-7.06 (*d*, 2H, Ar*H*)

5.10.15 4-{[5-(4-hydroxy-3-methoxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino}benzoic acid (111)

The title compound **111** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 4-hydroxy-3-methoxybenzaldehyde (121.7 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **111**, (271 mg, 75.86 %), **m.p.** 237-241°C.

Anal

TLC : Rf 0.3 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3380, 1706, 1635 and 1590
^{1}H-NMR : δ 7.96-7.98 (*d*, 2H, Ar*H*), 7.74 (*s*, 1H, C*H*), 7.45-7.57 (*m*, 5H, Ar*H*), 7.09 (*s*, 1H, Ar*H*), 6.89-7.03 (*m*, 4H, Ar*H*), 3.81 (*s*, 3H, OCH_3) and 1.93 (*s*, 1H, OH)

5.10.16 4-{[5-(4-carboxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene]amino} benzoic acid (112)

The title compound **112** was synthesized as per the method described for compound **1** reacting with 4-formylbenzoic acid (120.1 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **112**, (263 mg, 74.12%), **m.p.** 255-259°C.

Anal

TLC : Rf 0.39 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3117, 1718, 1688, 1638 and 1595
^{1}H-NMR : δ 7.99-8.05 (*m*, 4H, Ar*H*), 7.84 (*s*, 1H, C*H*) and 6.92-7.64 (*m*, 10H, Ar*H*)

5.10.17 4-{[5-(naphthalen-2-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene] amino}benzoic acid (113)

The title compound **113** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 2-naphthaldehyde (125 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **113**, (260 mg, 72.24%), **m.p.** 202-206°C.

Anal

TLC : Rf 0.34 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1710, 1682, 1638 and 1588
^{1}H-NMR : δ 6.82-8.19 (*m*, 17H, Ar*H* and C*H*)

5.10.18 4-{[5-(4-(benzyloxy)benzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene] amino}benzoic acid (114)

The title compound **114** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid with 4-(benzyloxy)benzaldehyde (169.8 mg, 0.8 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **114**, (290 mg, 71.53 %), **m.p.** 217-221 ˚C.

Anal

TLC : Rf 0.37 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3113, 1710, 1685, 1638, 1595 and 1258
^{1}H-NMR : δ 7.93-7.95 (*d*, 2H, Ar*H*), 7.70 (*s*, 1H, C*H*), 7.26-7.56 (*m*, 12H, Ar*H*), 6.87-7.08 (*m*, 4H, Ar*H*) and 5.07 (s, 2H, CH_2)

5.11 Synthesis of substituted 2-{4-[(5-ylidene-4-oxo-3-phenylthiazolidin-2-ylidene)amino]phenyl}acetic acid (115-132).

5.11.1 Synthesis of Methyl-2-(4-nitrophenyl) acetate (X)

To the solution of 4-nitrophenylacetic acid (15 g, 82.80 mmol) in methanol (100 ml), catalytic amount of sulfuric acid was added and refluxed for 2 hrs. The reaction mixture was concentrated under vacuum and solid obtained was recrystallized from methanol to obtained pure **X** (13.3 g, 82.42%), **m.p.** 56-58 ˚C.

Anal

TLC : Rf 0.57 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 1721, 1601, 1514 and 1343

5.11.2 Synthesis of Methyl-2-(4-aminophenyl) acetate (XI)

To the solution of Methyl-2-(4-nitrophenyl)acetate (X) (13.3 g, 68.14 mmol) in methanol (200 ml), Iron (7.61 g, 136.29 mmol) and solution of 20% sodium chloride in water was added portion wise under refluxed for 12 hrs. The reaction mixture was filtered and concentrated under vacuum. The obtained aq. layer was extracted with dichloromethane (50 X 3 mL). The combined organic layer was dried over Na_2SO_4 and concentrated under vacuum to afford the semisolid **XI** (6.38 g, 56.75%).

Anal

TLC : Rf 0.36 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3450, 3369, 2951, 1723, and 1622

5.11.3 Synthesis of Methyl 2-{4-[(4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetate (XIII)

To a solution of phenylisothiocyanate (4.91 g, 4.34 mL, 36.32 mmol) in methanol (50 mL), methyl 2-(4-aminophenyl)acetate (6 g, 36.32 mmol) was added portion wise at 20°C and allowed to stir at 20°C for 1hr. The reaction mixture was cooled to 0°C before ethyl chloroacetate (4.45 g, 3.88 mL, 36.32 mmol) was added carefully such that temperature dose not rise above 5˚C and for a further 15 min. at 0 ˚C before pyridine (5.74 g, 5.86 mL, 72.64 mmol) was added and stirring was continued at room temperature for 3 hrs. The resulting fine suspension was diluted with water (50 mL) and aqueous layer was extracted with dichloromethane (20 mL X 3). The combined organic extract containing crude product was dried over Na_2SO_4, filtered, and concentrated. The solid obtained was dried in vacuum dessicator to give **XIII** as white a solid (9 g, 72.85%), **m.p.** 104-108˚C.

Anal

TLC : Rf 0.47 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 2954, 1726, 1633 and 1595

5.11.4 Synthesis of 2-{4-[(4-oxo-3-phenylthiazolidin-2-ylidene)amino]phenyl} acetic acid (E)

The title compound **E** was synthesized as per the method described for compound **49** taking Methyl 2-{4-[(4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetate **XIII** (9g, 26.43 mmol) as the starting material to yield **E**, (5.23 g, 60.72 %), **m.p.** 213-215˚C.

Anal

TLC : Rf 0.21 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3325, 2954, 1726, 1633 and 1595
1H-NMR : δ 7.46-7.49 (*t*, 2H, Ar*H*), 7.34-7.41 (*m*, 3H, Ar*H*), 7.16-7.19 (*d*,2H, Ar*H*), 6.77-6.79 (*d*, 2H, Ar*H*), 4.07 (*s*, 2H, -S-CH_2) and 3.48 (*s*, 2H, CH_2)

5.12.1 2-{4-[(5-benzylidene-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl} acetic acid (115)

The title compound **115** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by benzaldehyde (81.28 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **115**, (228 mg, 72.12 %), **m.p.** 188-192˚C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1719, 1632 and 1603
^{1}H-NMR : δ 12.17 (*bs*, 1H, O*H*), 7.72 (*s*, 1H, C*H*), 7.34-7.50 (*m*, 10H, Ar*H*), 7.21-7.23 (*d*, 2H, Ar*H*), 6.83-6.85 (*d*, 2H, Ar*H*) and 3.51 (*s*, 2H, CH_2)

5.12.2 2-{4-[5-(4-chlorobenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl} acetic acid (116)

The title compound **116** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-chlorobenzaldehyde (107.7 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **116**, (236 mg, 68.75 %), **m.p.** >95-99˚C.

Anal

TLC : Rf 0.32 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1718, 1635 and 1606
^{1}H-NMR : δ7.75 (*s*, 1H, C*H*), 7.27-7.57 (*m*, 11H, Ar*H*), 6.89-6.95 (*d*, 2H, Ar*H*) and 3.65 (*s*, 2H, CH_2)

5.12.3 2-(4-{[5-{[4-(Dimethylamino)phenyl]methylidene}-4-oxo-3-phenyl-1,3-thiazolidin-2-ylidene]amino}phenyl)acetic acid (117)

The title compound **117** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-(dimethylamino)benzaldehyde

(114.27 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **117**, (262 mg, 74.86 %), **m.p.** 122-126˚C.

Anal

TLC : Rf 0.34 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3123, 1711, 1636 and 1589
MS : m/z 458.2 (M$^+$).
^{1}H-NMR : δ 7.79 (*s*, 1H, C*H*), 6.59-7.70 (*m*, 13H, Ar*H*), 3.64 (*s*, 2H, CH_2), 3.10 (*s*, 3H, CH_3) and 3.04 (*s*, 3H, CH_3)

5.12.4 2-{4-[(5-(4-nitrobenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (118)

The title compound **118** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-nitrobenzaldehyde (115.75 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **118**, (243 mg, 69.25 %), **m.p.** 115-119˚C.

Anal

TLC : Rf 0.48 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3112, 1717, 1644 and 1609
MS : m/z 458.2 (M+1)
^{1}H-NMR : δ8.25-8.27 (*d*, 2H, Ar*H*), 7.83(*s*, 1H, C*H*), 7.18-7.63 (*m*, 9H, Ar*H*), 6.93-6.96 (*t*, 2H, Ar*H*) and 3.67 (*s*, 2H, CH_2)

5.12.5 2-{4-[(5-(4-methoxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (119)

The title compound **119** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-methoxybenzaldehyde (104 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **119**, (261 mg, 76.84 %), **m.p.** 178-182˚C.

Anal

TLC : Rf 0.33 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3126, 1713, 1638 and 1594
^{1}H-NMR : δ 7.66 (*s*, 1H, C*H*), 6.82-7.47 (*m*, 13H, Ar*H*), 3.76 (*s*, 3H, CH_3) and 3.57 (*s*, 2H, CH_2)

5.12.6 2-{4-[(5-(4-methylbenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (120)

The title compound **120** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-methylbenzaldehyde (90 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **120**, (247 mg, 76.85 %), **m.p.** 110-112˚C.

Anal

TLC : Rf 0.32 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1717, 1637 and 1598
^{1}H-NMR : δ 7.66(*s*, 1H, C*H*), 6.82-7.47 (*m*, 13H, Ar*H*), 3.67 (*s*, 2H, CH_2) and 2.37 (*s*, 3H, CH_3)

5.12.7 2-{4-[(5-(4-fluorobenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (121)

The title compound **121** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-fluorobenzaldehyde (95 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **121**, (235 mg, 71.15 %), **m.p.** 171-175˚C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1714, 1638 and 1595
^{1}H-NMR : δ 7.79 (*s*, 1H, C*H*), 6.93-7.56 (*m*, 13H, Ar*H*) and 3.70 (*s*, 2H, CH_2)

5.12.8 2-{4-[(5-(4-Hydroxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (122)

The title compound **122** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-hydroxybenzaldehyde (93.5 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **122**, (242 mg, 73.51 %), **m.p.** 231-235˚C.

Anal

TLC : Rf 0.2 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3369, 1713, 1634 and 1588
^{1}H-NMR : δ10.09 (*bs*, 1H, OH), 7.62(*s*, 1H, C*H*), 6.79-7.48 (*m*, 13H, Ar*H*), 3.57 (*s*, 2H, CH_2) and 2.49 (*s*, 1H, O*H*)

5.12.9 2-{4-[(5-(3,4-dimethoxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene) amino]phenyl}acetic acid (123)

The title compound **123** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 3,4-dimethoxybenzaldehyde (127.3 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **123**, (281 mg, 77.46 %), **m.p.** 108-112 °C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3127, 1712, 1638 and 1592
^{1}H-NMR : δ 7.69 (*s*, 1H, C*H*), 6.82-7.46 (*m*, 13H, Ar*H*),3.83 (*s*, 3H, OCH_3), 3.79 (*s*, 3H, CH_3) and 3.62 (*s*, 2H, CH_2)

5.12.10 2-{4-[(4-oxo-3-phenyl-5-(3-phenylallylidene)thiazolidin-2-ylidene)amino] phenyl} acetic acid (124)

The title compound **124** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by cinnamaldehyde (101 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **124**, (250 mg, 74.35 %), **m.p.** 194-198 °C.

Anal

TLC : Rf 0.37 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3128, 1712, 1634 and 1607
^{1}H-NMR : δ7.70(*s*, 1H, C*H*), 6.68-7.49 (*m*, 16H, Ar*H*& C*H*,) and 3.57 (*s*, 2H, CH_2)

5.12.11 2-{4-[(5-(thiophen-2-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene) amino]phenyl}acetic acid (125)

The title compound **125** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 2-thiophenaldehyde (85.9 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **125**, (224 mg, 69.74 %), **m.p.** 189-193 °C.

Anal

TLC : Rf 0.39 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3109, 1712, 1633 and 1595

^{1}H-NMR : δ 7.97-8.00 (*d*, 2H, Ar*H*), 7.72 (*s*, 1H, C*H*), 6.90-7.54 (*m*, 10H, Ar*H*) and 3.64 (*s*, 2H, C*H*$_2$)

5.12.12 2-{4-[(5-(furan-2-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl} acetic acid (126)

The title compound **126** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by furfuraldehyde (75.12 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **126**, (210 mg, 67.86 %), **m.p.** 112-116 °C.

Anal

TLC : Rf 0.46 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1712, 1637 and 1615
^{1}H-NMR : δ 7.68(*s*, 1H, C*H*), 6.51-7.50 (*m*, 12H, Ar*H*) and 3.57 (*s*, 2H, C*H*$_2$)

5.12.13 2-{4-[(5-(naphthalen-1-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (127)

The title compound **127** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 1-naphthaldehyde (119.6 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **127**, (260 mg, 72.94 %), **m.p.** 198-202 °C.

Anal

TLC : Rf 0.43 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1709, 1638 and 1592
^{1}H-NMR : δ 8.55 (*s*, 1H, C*H*), 8.13-8.15 (*d*, 1H, Ar*H*), 7.85-7.87 (*d*, 2H, Ar*H*), 6.90-7.64 (*d*, 13H, Ar*H*$_d$) and 3.70 (*s*, 2H, C*H*$_2$)

5.12.14 2-{4-[(5-((1,1'-biphenyl)-4-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene) amino]phenyl}acetic acid (128)

The title compound **128** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by biphenyl-4-carboxaldehyde (139.5 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **128**, (291 mg, 77.48 %), **m.p.** 215-219 °C.

Anal

TLC : Rf 0.45 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3125, 1701, 1639 and 1596
MS : m/z 491.3 (M^+).
^{1}H-NMR : δ 7.83(*s*, 1H, C*H*), 6.91-7.71 (*m*, 18H, Ar*H*)and 3.66 (*s*, 2H, CH_2)

5.12.15 2-{4-[(5-(4-hydroxy-3-methoxybenzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene) amino]phenyl}acetic acid (129)

The title compound **129** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 4-hydroxy-3-methoxybenzaldehyde (116.5 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **129**, (267 mg, 75.85 %), **m.p.** 118-122 ˚C.

Anal

TLC : Rf 0.38 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3380, 1711, 1636 and 1589
^{1}H-NMR : δ 9.50 (*bs*, 1H, O*H*), 7.70 (*s*, 1H, C*H*), 6.89-7.56 (*m*, 12H, Ar*H*), 3.84 (*s*, 3H, OCH_3), 3.64 (*s*, 2H, CH_2) and 3.57 (*s*, 1H, O*H*)

5.12.16 4-{[2-((4-(carboxymethyl)phenyl)imino)-4-oxo-3-phenylthiazolidin-5-ylidene] methyl}benzoic acid (130)

The title compound **130** was synthesized as per the method described for compound **1** reacting by 4-formylbenzoic acid (115 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **130**, (247 mg, 70.46 %), **m.p.** >270˚C.

Anal

TLC : Rf 0.35 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3126, 1717, 1639 and 1606
^{1}H-NMR : δ7.98-8.00 (d, 2H, ArH), 7.73 (*s*, 1H, C*H*), 6.82-7.50 (*m*, 11H, Ar*H*) and 3.58 (*s*, 2H, CH_2)

5.12.17 2-{4-[(5-(naphthalen-2-ylmethylene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (131)

The title compound **131** was synthesized as per the method described for compound **1** replacing 4-formylbenzoic acid by 2-naphthaldehyde (119.6 mg, 0.76

mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **131**, (260 mg, 73.35%), **m.p.** 202-206˚C.

Anal

TLC : Rf 0.31 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3124, 1713, 1636 and 1591
^{1}H-NMR : δ 6.84-7.93 (*m*, 17H, Ar*H*) and 3.58 (*s*, 2H, CH_2)

5.12.18 2-{4-[(5-(4-(benzyloxy)benzylidene)-4-oxo-3-phenylthiazolidin-2-ylidene)amino] phenyl}acetic acid (132)

The title compound **132** was synthesized as per the method described for compound 1 replacing 4-formylbenzoic acid by 4-(benzyloxy)benzaldehyde (162.5 mg, 0.76 mmol). The crude product so obtained was recrystallized from methanol to afford the desired compound **132**, (287 mg, 72.12 %), **m.p.** 169-173˚C.

Anal

TLC : Rf 0.32 (Toluene:Methanol) (9:1)
IR (cm^{-1}) : 3113, 1701, 1634, 1596 and 1259
^{1}H-NMR : δ 6.77-7.66 (*m*, 19H, ArH), 5.04 (*s*, 2H, CH_2) and 3.44 (*s*, 2H, CH_2)

5.13. Biological studies

5.13.1 Enzyme-based assay of PTP1B

Enzymatic activity of PTP1B was determined at 30 ˚C by monitoring the hydrolysis of pNPP. Dephosphorylation of pNPP generates product pNP, which can be monitored at 405 nm. In a typical 100 μL assay, mixtures containing 50mM MOPS, pH 6.5, 2mM pNPP, and recombinant enzymes, PTP1B activities were continuously monitored on a SpectraMax 340 microplate reader at 405 nm for 2 min at 30 ˚C and the initial rate of the hydrolysis was determined using the early linear region of the enzymatic reaction kinetic curve. For calculating IC$_{50}$, inhibition assays were performed with 30 nM recombinant enzymes, 2mM pNPP in 50mMMOPS at pH 6.5, and the inhibitors diluted around the estimated IC$_{50}$ values. IC$_{50}$ was calculated from the nonlinear curve fitting of percent inhibition (inhibition (%) versus inhibitor concentration [I] by using the following equation:

$$\text{Percent inhibition} = \frac{100}{\{1+(\text{IC50}/[\text{I}])\text{k}\}}$$

Where, k is the Hill coefficient.

5.13.2 Enzyme-based assay of CDC25B, SHP1, LAR and TC-PTP.

Assays for these PTPases were performed at the optimal pH for each individual enzyme activity as mentioned in the kit protocol. These enzymes and inhibitors were preincubated for 3 min at 4°C and the assays were initiated by adding substrates. OMFP was used as the substrate in the assays performed for CDC25B, SHP1 and SHP2, LAR, and pNPP as the substrate for TC-PTP. The assays were carried out and the IC_{50} values were calculated in the same manner as for PTP1B.

5.13.3 Kinetic Studies

The kinetic parameters (Km and Vmax) were determined by measuring the initial rates at different substrate concentrations. Experimental data were analysed using the Michaelis equation and a non-linear fitting program. Inhibition constants were determined measuring initial hydrolysis rates at differing substrate and inhibitor concentrations. The apparent Km values measured at the various inhibitor concentrations were plotted against concentration of the inhibitor to calculate the Ki values. All initial rate measurements were carried out

in triplicate.

The Michaelis-Menten equation is described as

$$1/v=(K\text{m}/[\,V\text{max}[\text{S}]])(1+[\text{I}]/K\text{i})+1/\,V\text{max}$$

where v is the initial rate, Vmax is the maximum rate, and [S] is the substrate concentration. The Ki value was obtained by the linear replot of apparent Km/Vmax (slope) from the primary reciprocal plot versus the inhibitor concentration [I] according to the equation $K\text{m}/V\text{max}=1+[\text{I}]/K\text{i}$.