

## LIST OF FIGURES

Fig. No.	Figure Captions	Page No.
1.1	GABA biosynthesis	10
1.2.	Schematic model of an AMPA receptor subunit	12
3.1.	Template of compounds for series-I and series-II	32
4A.1.	General scheme for the synthesis of compounds <b>5a-5l</b>	35
4A.2.	Mechanism of reaction for the synthesis of quinazolin-4(3H)-ones	36
4A.3.	FT-IR spectrum of 2-(3-(2-chlorophenyl) acrylamido)-4,5dimethoxybenzoic acid ( <b>3</b> )	45
4A.4.	<sup>1</sup> H NMR spectrum of 2-(3-(2-chlorophenyl) acrylamido)-4,5 dimethoxybenzoic acid ( <b>3</b> )	45
4A.5.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-4 <i>H</i> benzo[d][1,3]oxazin-4-one ( <b>4</b> )	46
4A.6.	<sup>1</sup> H NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-4 <i>H</i> -benzo[d][1,3]oxazin-4-one ( <b>4</b> )	46
4A.7.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-phenylquinazolin-4(3H)-one ( <b>5a</b> )	47
4A.8.	<sup>1</sup> H NMR of 2-(2-chlorostyryl)-6,7-dimethoxy-3- phenylquinazolin-4(3H)-one ( <b>5a</b> )	47
4A.9.	<sup>13</sup> C NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-phenylquinazolin-4(3H)-one ( <b>5a</b> )	48
4A.10.	Mass spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-phenylquinazolin-4(3H)-one ( <b>5a</b> )	48
4A.11.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2,4-dimethylphenyl)quinazolin-4(3H)-one ( <b>5b</b> )	49
4A.12.	<sup>1</sup> H NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2,4-dimethylphenyl)quinazolin-4(3H)-one ( <b>5b</b> )	49
4A.13.	<sup>13</sup> C NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2,4 -dimethylphenyl)quinazolin-4(3H)-one ( <b>5b</b> )	50
4A.14.	Mass spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2,4-dimethylphenyl)quinazolin-4(3H)-one ( <b>5b</b> )	50
4A.15.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3- <i>m</i> -tolylquinazolin-4(3H)-one ( <b>5c</b> )	51
4A.16.	<sup>1</sup> H NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3- <i>m</i> -tolylquinazolin-4(3H)-one ( <b>5c</b> )	51
4A.17.	<sup>13</sup> C NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3- <i>m</i> -tolylquinazolin-4(3H)-one ( <b>5c</b> )	52
4A.18.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2-methoxyphenyl)quinazolin-4(3H)-one ( <b>5d</b> )	52
4A.19.	<sup>1</sup> H NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2-methoxyphenyl)quinazolin-4(3H)-one ( <b>5d</b> )	53

4A.20.	$^{13}\text{C}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2-methoxyphenyl)quinazolin-4(3H)-one ( <b>5d</b> )	53
4A.21.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(3-methoxyphenyl)quinazolin-4(3H)-one ( <b>5e</b> )	54
4A.22.	$^1\text{H}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(3-methoxyphenyl)quinazolin-4(3H)-one ( <b>5e</b> )	54
4A.23.	$^{13}\text{C}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(3-methoxyphenyl)quinazolin-4(3H)-one ( <b>5e</b> )	55
4A.24.	Mass spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(3-methoxyphenyl)quinazolin-4(3H)-one ( <b>5e</b> )	55
4A.25.	FT-IR spectrum of 2-(2-chlorostyryl)-3-benzyl-6,7-dimethoxyquinazolin-4(3H)-one ( <b>5f</b> )	56
4A.26.	$^1\text{H}$ NMR spectrum of 2-(2-chlorostyryl)-3-benzyl-6,7-dimethoxyquinazolin-4(3H)-one ( <b>5f</b> )	56
4A.27.	$^{13}\text{C}$ NMR spectrum of 2-(2-chlorostyryl)-3-benzyl-6,7-dimethoxyquinazolin-4(3H)-one ( <b>5f</b> )	57
4A.28.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(4-nitrophenyl)quinazolin-4(3H)-one ( <b>5g</b> )	57
4A.29.	$^1\text{H}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(4-nitrophenyl)quinazolin-4(3H)-one ( <b>5g</b> )	58
4A.30.	$^{13}\text{C}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(4-nitrophenyl)quinazolin-4(3H)-one ( <b>5g</b> )	58
4A.31.	Mass spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(4-nitrophenyl)quinazolin-4(3H)-one ( <b>5g</b> )	59
4A.32.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2-nitrophenyl)quinazolin-4(3H)-one ( <b>5h</b> )	59
4A.33.	$^1\text{H}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2-nitrophenyl)quinazolin-4(3H)-one ( <b>5h</b> )	60
4A.34.	$^{13}\text{C}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(2-nitrophenyl)quinazolin-4(3H)-one ( <b>5h</b> )	60
4A.35.	FT-IR spectrum of 2-(2-chlorostyryl)-3-(4-bromophenyl)-6,7-dimethoxyquinazolin-4(3H)-one ( <b>5i</b> )	61
4A.36.	$^1\text{H}$ NMR spectrum of 2-(2-chlorostyryl)-3-(4-bromophenyl)-6,7-dimethoxyquinazolin-4(3H)-one ( <b>5i</b> )	61
4A.37.	$^{13}\text{C}$ NMR spectrum of 2-(2-chlorostyryl)-3-(4-bromophenyl)-6,7-dimethoxyquinazolin-4(3H)-one ( <b>5i</b> )	62
4A.38.	Mass spectrum of 2-(2-chlorostyryl)-3-(4-bromophenyl)-6,7-dimethoxyquinazolin-4(3H)-one ( <b>5i</b> )	62
4A.39.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(pyrimidin-2-yl)quinazolin-4(3H)-one ( <b>5j</b> )	63
4A.40.	$^1\text{H}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(pyrimidin-2-yl)quinazolin-4(3H)-one ( <b>5j</b> )	63
4A.41.	$^{13}\text{C}$ NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(pyrimidin-2-yl)quinazolin-4(3H)-one ( <b>5j</b> )	64

4A.42.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(pyridin-4-yl)quinazolin-4(3 <i>H</i> )-one ( <b>5k</b> )	64
4A.43.	<sup>1</sup> H NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(pyridin-4-yl)quinazolin-4(3 <i>H</i> )-one ( <b>5k</b> )	65
4A.44.	<sup>13</sup> C NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(pyridin-4-yl)quinazolin-4(3 <i>H</i> )-one ( <b>5k</b> )	65
4A.45.	FT-IR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(thiazol-2-yl)quinazolin-4(3 <i>H</i> )-one ( <b>5l</b> )	66
4A.46.	<sup>1</sup> H NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(thiazol-2-yl)quinazolin-4(3 <i>H</i> )-one ( <b>5l</b> )	66
4A.47.	<sup>13</sup> C NMR spectrum of 2-(2-chlorostyryl)-6,7-dimethoxy-3-(thiazol-2-yl)quinazolin-4(3 <i>H</i> )-one ( <b>5l</b> )	67
4B.1.	General scheme for the synthesis of compounds <b>8a–8l</b>	69
4B.2.	FT-IR spectrum of 2-(2-(benzyloxy)acetamido)-4,5-dimethoxybenzoic acid ( <b>4</b> )	75
4B.3.	<sup>1</sup> H NMR spectrum of 2-(2-(benzyloxy)acetamido)-4,5-dimethoxybenzoic acid ( <b>4</b> )	75
4B.4.	IR spectrum of 2-(2-(phenylthio)acetamido)-4,5-dimethoxybenzoic acid ( <b>5</b> )	76
4B.5.	<sup>1</sup> H NMR spectrum of 2-(2-(phenylthio)acetamido)-4,5-dimethoxybenzoic acid ( <b>5</b> )	76
4B.6.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-4 <i>H</i> -benzo[ <i>d</i> ][1,3]oxazin-4-one ( <b>6</b> )	77
4B.7.	<sup>1</sup> H NMR spectrum 2-((benzyloxy)methyl)-6,7-dimethoxy-4 <i>H</i> -benzo[ <i>d</i> ][1,3]oxazin-4-one ( <b>6</b> )	77
4B.8.	FT-IR spectrum of 6,7-dimethoxy-2-((phenylthio)methyl)-4 <i>H</i> -benzo[ <i>d</i> ][1,3]oxazin-4-one ( <b>7</b> )	78
4B.9.	<sup>1</sup> H NMR spectrum of 6,7-dimethoxy-2-((phenylthio)methyl)-4 <i>H</i> -benzo[ <i>d</i> ][1,3]oxazin-4-one ( <b>7</b> )	78
4B.10.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-m-tolylquinazolin-4(3 <i>H</i> )-one ( <b>8a</b> )	79
4B.11.	<sup>1</sup> H NMR spectrum 2-((benzyloxy)methyl)-6,7-dimethoxy-3-m-tolylquinazolin-4(3 <i>H</i> )-one ( <b>8a</b> )	79
4B.12.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(2,4-dimethylphenyl)quinazolin-4(3 <i>H</i> )-one ( <b>8b</b> )	80
4B.13.	<sup>1</sup> H NMR spectrum 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(2,4-dimethylphenyl)quinazolin-4(3 <i>H</i> )-one ( <b>8b</b> )	80
4B.14.	Mass spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(2,4-dimethylphenyl)quinazolin-4(3 <i>H</i> )-one ( <b>8b</b> )	81
4B.15.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(3-methoxyphenyl)quinazolin-4(3 <i>H</i> )-one ( <b>8c</b> )	81
4B.16.	<sup>1</sup> H NMR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(3-methoxyphenyl)quinazolin-4(3 <i>H</i> )-one ( <b>8c</b> )	82

4B.17.	Mass spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(3-methoxyphenyl)quinazolin-4(3H)-one ( <b>8c</b> )	82
4B.18.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(2-methoxyphenyl)quinazolin-4(3H)-one ( <b>8d</b> )	83
4B.19.	<sup>1</sup> H NMR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(2-methoxyphenyl)quinazolin-4(3H)-one ( <b>8d</b> )	83
4B.20.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(benzyl)quinazolin-4(3H)-one ( <b>8e</b> )	84
4B.21.	<sup>1</sup> H NMR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(benzyl)quinazolin-4(3H)-one ( <b>8e</b> )	84
4B.22.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(4-nitrophenyl)quinazolin-4(3H)-one ( <b>8f</b> )	85
4B.23.	<sup>1</sup> H NMR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(4-nitrophenyl)quinazolin-4(3H)-one ( <b>8f</b> )	85
4B.24.	Mass spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(4-nitrophenyl)quinazolin-4(3H)-one ( <b>8f</b> )	86
4B.25.	FT-IR spectrum of 2-(benzyloxymethyl)-3-(4-bromophenyl)-6,7-dimethoxyquinazolin-4(3H)-one ( <b>8g</b> )	86
4B.26.	<sup>1</sup> H NMR spectrum of 2-(benzyloxymethyl)-3-(4-bromophenyl)-6,7-dimethoxyquinazolin-4(3H)-one ( <b>8g</b> )	87
4B.27.	FT-IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(pyridin-4-yl)quinazolin-4(3H)-one ( <b>8h</b> )	87
4B.28.	<sup>1</sup> H NMR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(pyridin-4-yl)quinazolin-4(3H)-one ( <b>8h</b> )	88
4B.29.	FT-IR spectrum of 2-(benzyloxymethyl)-6,7-dimethoxy-3-(pyrimidin-2-yl)quinazolin-4(3H)-one ( <b>8i</b> )	88
4B.30.	<sup>1</sup> H NMR spectrum of 2-(benzyloxymethyl)-6,7-dimethoxy-3-(pyrimidin-2-yl)quinazolin-4(3H)-one ( <b>8i</b> )	89
4B.31.	IR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(thiazol-2-yl)quinazolin-4(3H)-one ( <b>8j</b> )	89
4B.32.	<sup>1</sup> H NMR spectrum of 2-((benzyloxy)methyl)-6,7-dimethoxy-3-(thiazol-2-yl)quinazolin-4(3H)-one ( <b>8j</b> )	90
4B.33.	FT-IR spectrum of 6,7-dimethoxy-3-(4-nitrophenyl)-2-((phenylthio)methyl)quinazolin-4(3H)-one ( <b>8k</b> )	90
4B.34.	<sup>1</sup> H NMR spectrum of 6,7-dimethoxy-3-(4-nitrophenyl)-2-((phenylthio)methyl)quinazolin-4(3H)-one ( <b>8k</b> )	91
4B.35.	FT-IR spectrum of 6,7-dimethoxy-3-(3-methoxyphenyl)-2-((phenylthio)methyl)quinazolin-4(3H)-one ( <b>8l</b> )	91
4B.36.	<sup>1</sup> H NMR spectrum of 6,7-dimethoxy-3-(3-methoxyphenyl)-2-((phenylthio)methyl)quinazolin-4(3H)-one ( <b>8l</b> )	92
4C.1.	The centroid of the sitemap_site1 used in the generation of grid	98
5A.1.	Photomicrograph of liver at 40X magnification (a) control, (b) compound 5g, (c) 5i and (d) GYKI 52466 treated groups	102

5B.1.	Photomicrograph of liver at 40X magnification (a) control, (b) 8f, (c) 8h and (d) GYKI 52466 treated groups	106
5C.2.1.	Compound 5g hydrogen bonded with key amino acid residues (Arg 108 and Lys 269)	110
5C.2.2.	Compound 5g docked within the predicted binding pocket of ATD of glutamate receptor	110
5C.2.3.	GYKI 52466 docked within the predicted binding pocket of ATD of glutamate receptor	111
5C.2.4.	Compound 8f docked within the predicted binding pocket of ATD of glutamate receptor	111
5C.2.5.	Compound 8f within the binding cavity formed by loop residues	112