List of Figures

Sl. No.	Figure title	Page No.
1.	The global trend of increased interest in traditional and herbal medicine.	1
2.	Association of various disease with free radical mediated oxidative stress.	2
3.	Schematic representation of formation of various free radicals for oxygen.	3
4.	Neutralization of free radicals by antioxidants.	3
5.	Schematic representation of cytokine interactions during inflammation	7
6.	Summarizes the various events which occur during the Drug Induced Hepatotoxicity	8
7.	The effect of diabetes on different systems of the body.	11
8.	Oxidative stress pathways in diabetes mellitus.	11
9.	Simplified representation of the metabolic pathway of formation of various classes of plant secondary metabolites	13
10.	Picture of white variety of *N. indicum*.	18
11.	Photomicrograph of formation of plaque in the PFC assay.	59
12.	Linear correlation between IgM levels Vs PFC values	60
13.	Effect of NILE, NISE and NIRE on total macrophage count in murine model.	61
14.	The effect of *N. indicum* extracts on phagocytic capacity and phagocytic index of murine peritoneal exudate macrophages.	62
15.	Effect of NILE, NISE and NIRE on removal of non-specific carbon particles from the systemic circulation as evaluated by Carbon Clearance test.	62
16.	Inhibition of cell-adhesion by NILE, NISE and NIRE.	63
17.	Effect of NILE, NISE and NIRE on the respiratory burst activity of murine peritoneal exudate macrophages.	64
18.	The percentage of MPO reduction by NILE, NISE and NIRE in murine peritoneal macrophages.	64
19.	The ability of NILE, NISE and NIRE to inhibit LPS stimulated NO in murine macrophages.	65
20.	The ability of NILE, NISE and NIRE to inhibit Con A stimulated NO in murine lymphocytes	66
21.	Photomicrograph of viable murine splenic lymphocytes visualized using Trypan Blue staining	66
22.	The effect of NILE, NISE and NIRE on Con A stimulated IFN-γ release in murine lymphocytes.	67
23.	The effect of NILE, NISE and NIRE on Con A stimulated IL-2 release in murine lymphocytes.	68
24.	The effect of NILE, NISE and NIRE on Con A stimulated TNF-α release in murine lymphocytes.	68
25.	The effect of NILE, NISE and NIRE on Con A stimulated IL-4 release in murine lymphocytes.	68
26.	The effect of NILE, NISE and NIRE on Con A stimulated IL-10 release in murine lymphocytes.	69
27.	The effect of NILE on Con A stimulated COX-1, COX-2 and total COX activities in murine lymphocytes.	70
28.	The effect of NISE on Con A stimulated COX-1, COX-2 and total COX	70

activities in murine lymphocytes.
29. The effect of NIRE on Con A stimulated COX-1, COX-2 and total COX activities in murine lymphocytes. 70
30. The effect of NILE, NISE and NIRE on Con A stimulated PGE_2 level in murine lymphocytes and percentage of inhibition of PGE_2 level. 71
31. Photographs of mouse hind foot-pads in Delayed Type Hypersensitivity assay. 72
32. The effect of NILE, NISE and NIRE on ovalbumin induced Delayed Type Hypersensitivity response in mouse foot-pad. 73
33. Inhibition of ABTS radical cation by *N. indicum* and standard Trolox. 77
34. DPPH radical scavenging activity of NILE, NISE, NIRE and standard ascorbic acid. 77
35. Hydroxyl radical inhibitory activity of NILE, NISE, NIRE and standard mannitol. 78
36. Superoxide radical inhibitory activity of NILE, NISE, NIRE and standard quercetin. 78
37. Nitric oxide inhibitory activity of NILE, NISE, NIRE and standard Curcumin. 79
38. Hydrogen peroxide scavenging activity of NILE, NISE, NIRE and standard sodium pyruvate. 79
39. Peroxynitrite anion scavenging activity of NILE, NISE, NIRE and standard gallic acid. 80
40. Singlet oxygen scavenging activity of NILE, NISE, NIRE and standard lipoic acid. 80
41. Hypochlorous acid scavenging activity of NILE, NISE, NIRE and standard ascorbic acid. 81
42. Iron chelation activity of NILE, NISE, NIRE and standard EDTA. 81
43. Total reducing power of NILE, NISE, NIRE and standard butylated hydroxytoluene 82
44. Inhibition of lipid peroxidation by NILE, NISE, NIRE and standard Trolox. 82
45. The liver catalase activity in different experimental groups. 86
46. The liver peroxidase activity in different experimental groups. 87
47. The serum malondialdehyde (MDA) content in different experimental groups. 89
48. The amount of viable cells in different experimental groups. 90
49. The tumor necrosis factor-alpha content in different experimental groups. 90
50. The amount of nitric oxide (NO) release in different experimental groups. 91
51. Photomicrographs of the histopathological examination of livers samples of control group. 92
52. Photomicrographs of the histopathological examination of livers samples of CCl_4 group. 93
53. Photomicrographs of the histopathological examination of livers samples of Silymarin group. 93
54. Photomicrographs of the histopathological examination of livers samples of NILE low group. 94
55. Photomicrographs of the histopathological examination of livers samples of NILE high group. 94
56. Photomicrographs of the histopathological examination of livers samples of NISE low group. 95
57. Photomicrographs of the histopathological examination of livers samples of NISE high group. 95
58. Photomicrographs of the histopathological examination of livers samples of 96

NIRE low group.
59. Photomicrographs of the histopathological examination of livers samples of NIRE low group. 96
60. The α-amylase inhibitory activity of NILE, NISE and NIRE represented as percentage of inhibition. 97
61. The change of blood glucose level in the experimental animals on day 1, day 10 and day 20 of the experiment. 99
62. The serum MDA levels in different experimental groups. 99
63. The hepatic glycogen content in different experimental groups. 100
64. Catalase activity in kidney, liver and muscle in different experimental groups. 102
65. Peroxidase activity in kidney, liver and muscle in different experimental groups. 102
66. The blood Glycated haemoglobin (HbA1c) level in different experimental groups. 103
67. The blood insulin level in different experimental groups. 104
68. Fourier transform infrared spectra of NILE. 106
69. Fourier transform infrared spectra of NISE. 107
70. Fourier transform infrared spectra of NIRE. 107
71. HPLC chromatogram of NILE. 109
72. HPLC chromatogram of NISE. 110
73. HPLC chromatogram of NIRE. 110
74. GC chromatogram of dichloromethane fraction of NILE. 111
75. GC chromatogram of n-hexane fraction of NILE. 113
76. GC chromatogram of dichloromethane fraction of NISE. 114
77. GC chromatogram of n-hexane fraction of NISE. 115
78. GC chromatogram of dichloromethane fraction of NIRE. 116
79. GC chromatogram of n-hexane fraction of NIRE. 118