Figure No.	Description	Page No.
Figure 2.1	Andrographis paniculata (Burm. F.) Wall. Ex Nees	8
Figure 2.2	Major phytochemical constituents from Andrographis paniculata	12
Figure 4.1	HPLC fingerprint of (A) standard mixtures and (B) <i>Andrographis paniculata</i> extract (AP; KalmCold [™])	91
Figure 4.2	HPLC fingerprint of isolated pure andrographolide from <i>Andrographis paniculata</i> extract	92
Figure 4.3	HPLC fingerprint of standardised root extract of <i>Withania somnifera</i>	92
Figure 4.4	Effect of different dose of <i>Andrographis paniculata</i> extract (AP) on basal core temperatures of mice	93
Figure 4.5	Effect of repeated treatment of <i>Andrographis paniculata</i> extract (AP) on (A) stress-induced hyperthermia in mice. Log dose response curves obtained from the data summarized in this figure are shown in (B), (C) and (D)	93
Figure 4.6	Effect of 10 daily oral doses of <i>Andrographis paniculata</i> extract (AP) on (A) apomorphine (Apo)-induced rats and (B) Log dose response curve for 10 daily oral doses of AP on apomorphine (Apo)-induced rats in cage-climbing test	94
Figure 4.7	Mean (± SEM) of (A) body weight, (B) basal rectal temperatures, (C) foot-shock stress-induced hyperthermic responses, and (D) sleep onset periods and durations of sleep induced pentobarbital in the vehicle treated control groups used in the three experiments	95

Figure 4.8	Effect of once daily oral doses of andrographolide for 10 consecutive days observed in the pilot experiment. (A) Mean body weight, and (B) basal core temperature quantified on different days of the experiment. Andrographolide dose response curves in the foot-shock stress induced hyperthermia test conducted on days 1, 5, 7 and 10 of the experiment (C) and in the pentobarbital sleep test conducted on day 11 of the test (D) are shown in this figure	96
Figure 4.9	Effect of intermittent foot-shocks and daily handling on (A and B) body weight and (C and D) basal rectal temperature of male and female mice treated with vehicle, andrographolide, or diazepam	97
Figure 4.10	Effect of daily handling on foot-shock stress triggered hyperthermia on days 1, 5, 7 and 10 in (A) male and (B) female mice treated with vehicle, andrographolide, or diazepam	98
Figure 4.11	Effect of andrographolide or diazepam treatments on pentobarbital-induced sleep parameters quantified on day 11 of treatments in (A) male and (B) female mice	98
Figure 4.12	Effect of 10 daily oral doses of <i>Andrographis paniculata</i> extract (AP) on (A) onset of sleep, and (B) duration of sleep induced by pentobarbital sodium (40 mg/kg, i.p.) in rats	99
Figure 4.13	Effect of 10 daily oral doses of <i>Andrographis paniculata</i> extract (AP) on spontaneous locomotor activity in rats	99
Figure 4.14	Effect of <i>Andrographis paniculata</i> extract (AP) on blood glucose level of rats in oral glucose tolerance test	100
Figure 4.15	Effect of 10 consecutive daily oral doses of <i>Andrographis paniculata</i> extract (AP) or of glibenclamide, on plasma lipid profiles of type-2 diabetic rats	100
Figure 4.16	Histological sections (Haematoxylin & Eosin staining; X100) of (A) pancreases, (B) livers, (C) kidneys, and (D) Spleens of representative rats from each group	101
Figure 4.17	Effect of <i>Andrographis paniculata</i> extract (AP) or of atorvastatin treatments on plasma lipid profile in high fat fed rats	102
Figure 4.18	Effect of <i>Andrographis paniculata</i> extract (AP) or of atorvastatin treatments on plasma lipid profiles of in fructose fed obese rats	103

Figure 4.19	Effect of <i>Andrographis paniculata</i> extract (AP) on (A) nondiabetic and (B) diabetic rats in behaviour despair test	103
Figure 4.20	Effect of <i>Andrographis paniculata</i> extract (AP) on (A) nondiabetic and (B) diabetic rats in learned helplessness test	104
Figure 4.21	Effect of <i>Andrographis paniculata</i> extract (AP) on brain monoamines level of (A) nondiabetic and (B) diabetic rats after performing learned helplessness test	105
Figure 4.22	Effect of Andrographis paniculata extract (AP) on brain MAO-A (nmol 5-HT/mg protein/h) and MAO-B (nmol β -PEA/mg protein/h) enzyme activity of (A) nondiabetic and (B) diabetic rats after performing learned helplessness test	106
Figure 4.23	Effect of <i>Andrographis paniculata</i> extract (AP) on brain antioxidant enzymes activity viz. LPO (nmol MDA/mg protein), SOD (Units/mg protein), and CAT (µmol H ₂ O ₂ /min/mg protein) of (A) nondiabetic and (B) diabetic rats after performing learned helplessness test	107
Figure 4.24	Effect of <i>Andrographis paniculata</i> extract (AP) on (A) nondiabetic and (B) diabetic rats in social interaction test	108
Figure 4.25	Effect of <i>Andrographis paniculata</i> extract (AP) on latency to entry in light box (sec), number of entry in light box (N), and time spent in light box (sec) by (A) nondiabetic and (B) diabetic rats in light-dark box test	109
Figure 4.26	Effect of <i>Andrographis paniculata</i> extract (AP) on (A) nondiabetic and (B) diabetic rats on open arms activities during elevated plus maze test	110
Figure 4.27	Effect of Andrographis paniculata extract (AP) on brain antioxidant enzymes activity viz. LPO (nmol MDA/mg protein), SOD (Unit/mg protein), and CAT (μ mol H ₂ O ₂ /min/mg protein) of (A) nondiabetic and (B) diabetic rats after performing elevated plus maze test	111
Figure 4.28	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on escape latency to find the platform (on days 7-9) by (A) nondiabetic and (B) diabetic rats during morris water-maze task	112
Figure 4.29	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on time spent (sec) in targeted quadrant by (A) nondiabetic and (B) diabetic rats during probe trial in morris water-maze task	113

Figure 4.30	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on brain antioxidant enzymes activity viz. LPO (nmol MDA/mg protein), SOD (Unit/mg protein), and CAT (μ mol H ₂ O ₂ /min/mg protein) of (A) nondiabetic and (B) diabetic rats of nondiabetic rats after performing probe trial	114
Figure 4.31	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on brain acetylcholinesterase enzyme activity of (A) nondiabetic and (B) diabetic rats after performing probe trial in morris water- maze task	115
Figure 4.32	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on locomotor activity of (A) nondiabetic and (B) diabetic rats	116
Figure 4.33	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on 5-HTP-induced head twitches of (A) nondiabetic and (B) diabetic mice	117
Figure 4.34	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on L-DOPA-induced hyperactivity of (A) nondiabetic and (B) diabetic mice	118
Figure 4.35	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on apomorphine-induced hyperactivity of (A) nondiabetic and (B) diabetic mice	119
Figure 4.36	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on cotton pellet-induced granuloma in (A) nondiabetic and (B) diabetic rats	120
Figure 4.37	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on day 1 of carrageenan-induced pedal oedema in (A) nondiabetic and (B) diabetic rats	121
Figure 4.38	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on day 10 of carrageenan-induced pedal oedema in (A) nondiabetic and (B) diabetic rats	122
Figure 4.39	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on percentage inhibition of carrageenan-induced pedal oedema on day 10 in (A) nondiabetic and (B) diabetic rats	123
Figure 4.40	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on tail flick reaction time in (A) nondiabetic and (B) diabetic rats	124
Figure 4.41	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on hot plate reaction time in (A) nondiabetic and (B) diabetic mice	125

Figure 4.42	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on incidence of spontaneous flinch in (A) nondiabetic and (B) diabetic rats	126
Figure 4.43	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide treatments on (A) body weight, and (B) body weight changes observed between day 1 and 21	127
Figure 4.44	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on (A) weight of adrenal gland and spleen, and (B) plasma corticosterone level of chronically stressed rats	128
Figure 4.45	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on stressed rat (A) learned helpless test, (B) suppression in sexual behaviour test, and (C) behavioural despair test	129
Figure 4.46	Effect of <i>Andrographis paniculata</i> extract (AP) and andrographolide on expressions of TNF- α , IL-10 and IL-1 β in chronic stressed rats. (A) Gel picture showing expression of cytokines normalized with β -actin housekeeping gene in blood and brain, (B) percentage change in mRNA expression of cytokines in blood (WBC), and (C) in frontal cortex	130
Figure 4.47	Viability of HL-60 cells (percentage relative value) in MTT assay with (A) <i>Andrographis paniculata</i> extract, and (B) andrographolide using HL-60 cell line	131
Figure 4.48	Effect of andrographolide on various cytokines expression viz. TNF- α , IL-1 β and IL-10 in HL-60 cell- line. (A) Gel picture showing expression of cytokines, and (B) fold change in mRNA expression of cytokines normalised with β -actin housekeeping gene	132
Figure 4.49	Effect of andrographolide (Andro) on various TLRs expression viz. TLR-3, TLR-7 and TLR-8 in HL-60 cell- line. (A) Gel picture showing expression of TLRs, and (B) fold change in mRNA expression of TLRs normalised with β -actin housekeeping gene	133