



Contents

CONTENTS

CHAPTER No.	TITLE	PAGE No.
	LIST OF TABLES	
	LIST OF FIGURES	
	LIST OF PLATES	
1	INTRODUCTION	1
2	REVIEW OF LITERATURE	7
3	METHODOLOGY	38
4	RESULTS	82
5	DISCUSSION	140
6	SUMMARY AND CONCLUSION	191
	BIBLIOGRAPHY	

LIST OF TABLES

TABLE No.	TITLE	PAGE No.
I	Enzymic antioxidant activity of <i>Rhinacanthus nasutus</i> leaves	83
II	Non-enzymic antioxidant levels of <i>Rhinacanthus nasutus</i> leaves	84
III	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on SOD activity in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	90
IV	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on catalase activity in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	91
V	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on peroxidase activity in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	92
VI	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on GST activity in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	93
VII	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on the levels of ascorbic acid in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	94
VIII	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on the levels of tocopherol in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	95
IX	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on the levels of vitamin A in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	95
X	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on the levels of reduced glutathione in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	96
XI	Effect of <i>Rhinacanthus nasutus</i> leaf extract on enzymic antioxidant activities in primary cultured chick embryo fibroblasts exposed to H ₂ O ₂ <i>in vitro</i>	100
XII	Effect of <i>Rhinacanthus nasutus</i> leaf extract on non-enzymic antioxidant levels in primary cultured chick embryo fibroblasts exposed to H ₂ O ₂ <i>in vitro</i>	101

Contd...

TABLE No.	TITLE	PAGE No.
XXII	Effect of <i>Rhinacanthus nasutus</i> leaf extract on cell viability of <i>Saccharomyces cerevisiae</i> cells subjected to oxidative stress as determined by the MTT assay	119
XXIII	Effect of <i>Rhinacanthus nasutus</i> leaf extract on cell viability of <i>Saccharomyces cerevisiae</i> cells subjected to oxidative stress as determined by the SRB assay	120
XXIV	Effect of <i>Rhinacanthus nasutus</i> leaf extract on DNA fragmentation in <i>Saccharomyces cerevisiae</i> cells subjected to oxidative stress	121
XXV	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the morphological changes in Hep2 cells subjected to oxidative stress as determined by giemsa staining	123
XXVI	Effect of <i>Rhinacanthus nasutus</i> leaf extract on nuclear morphology of Hep2 cells subjected to oxidative stress as determined by EtBr staining	125
XXVII	Effect of <i>Rhinacanthus nasutus</i> leaf extract on nuclear changes in Hep2 cells subjected to oxidative stress as determined by propidium iodide staining	125
XXVIII	Effect of <i>Rhinacanthus nasutus</i> leaf extract on nuclear changes in Hep2 cells subjected to oxidative stress as determined by DAPI staining	128
XXIX	Effect of <i>Rhinacanthus nasutus</i> leaf extract on cell viability of Hep2 cells subjected to oxidative stress as determined by the MTT assay	130
XXX	Effect of <i>Rhinacanthus nasutus</i> leaf extract on cell viability of Hep2 cells subjected to oxidative stress as determined by the SRB assay	131
XXXI	Integrated density values (IDV) of the bands in the agarose gel of DNA fragmentation assay	131

LIST OF FIGURES

Figure No.	TITLE	PAGE No.
1	Radical scavenging effects of <i>Rhinacanthus nasutus</i> leaf extracts	86
2	Effect of <i>Rhinacanthus nasutus</i> leaf extracts against oxidative damage to deoxy ribose	86
3	Effect of <i>Rhinacanthus nasutus</i> leaf extracts against oxidative damage induced in herring sperm DNA	88
4	Effect of <i>Rhinacanthus nasutus</i> leaves on LPO in goat liver homogenate	88
5	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on DPPH scavenging ability in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	97
6	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on LPO in goat liver slices exposed to H ₂ O ₂ <i>in vitro</i>	97
7	Effect of <i>Rhinacanthus nasutus</i> on DPPH scavenging ability in primary cultured chick embryo exposed to H ₂ O ₂ <i>in vitro</i>	103
8	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic ratio of the giemsa stained chick embryo fibroblasts	105
9	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic ratio of the EtBr stained chick embryo fibroblasts	107
10	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic ratio of the PI stained chick embryo fibroblasts	108
11	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic ratio of the giemsa stained <i>Saccharomyces cerevisiae</i> cells	114
12	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic ratio of the EtBr stained <i>Saccharomyces cerevisiae</i> cells	117
13	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic ratio of PI stained <i>Saccharomyces cerevisiae</i> cells	118

Contd...

Figure No.	TITLE	PAGE No.
14	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on the apoptotic ratio of the giemsa stained Hep2 cells	124
15	Effect of <i>Rhinacanthus nasutus</i> leaf extracts on the apoptotic ratio of EtBr stained Hep2 cells	126
16	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic ratio of PI stained Hep2 cells	127
17	Effect of <i>Rhinacanthus nasutus</i> leaf extract on the apoptotic index of DAPI stained Hep2 cells	129
18	Survey scan of the methanolic extract of <i>Rhinacanthus nasutus</i> leaves	134
19	HPLC profile of <i>Rhinacanthus nasutus</i> leaves	135
20	GC MS profile of <i>Rhinacanthus nasutus</i> leaves	135
21a	Peak fragmentation of GCMS spectrum (4.14)	137
21b	Peak fragmentation of GCMS spectrum (7.8)	137
22a	IR spectrum of <i>Rhinacanthus nasutus</i> leaves (Band 1 from TLC)	138
22b	IR spectrum of <i>Rhinacanthus nasutus</i> leaves (Band 2 from TLC)	138