

CONTENTS

Sl. No.	Particulars	Page No.
1.	Introduction	1-6
2.	Review of literature	7-65
	2.1 Ethnobotanical Study	7
	2.2 Phytochemical Study	15
	2.2.1 Antioxidants in plants	19
	2.2.2 Antimicrobials	25
	2.2.3 Anti-hyperglycemic activities in plant extracts	31
3.	Materials and Methods	66-93
	3.1 Survey	66
	3.1.1 Study Area	66
	3.1.2 Procedure	66
	3.1.3 Selection of test plants	66
	3.2 Biochemical analysis of test plants	70
	3.2.1 Qualitative analysis	70
	3.2.1.1 Extraction	70
	3.2.1.1.1 Alkaloid	70
	3.2.1.1.2 Flavonoid	70
	3.2.1.1.3 Terpenoid	72
	3.2.1.1.4 Cardiac glycosides	72
	3.2.1.2 Steroid	72
	3.2.1.3 Tannin	72
	3.2.1.4 Saponin	72
	3.2.2 Quantitative Analysis	72
	3.2.2.1 Alkaloids	72
	3.2.2.2 Proteins	73
	3.2.2.2.1 Extraction	73
	3.2.2.2.2 Estimation	73
	3.2.2.3 Carbohydrates	73
	3.2.2.3.1 Extraction	73
	3.2.2.3.2 Estimation of total sugar	74
	3.2.2.3.3 Estimation of reducing sugar	74

Sl. No.	Particulars	Page No.
	3.2.2.4 Phenols	74
	3.2.2.4.1 Extraction	74
	3.2.2.4.2 Estimation	74
	3.2.2.5 Ascorbic Acid	75
	3.2.2.6 Carotenoid	75
3.2.3	Analysis of protein pattern	75
3.2.4	Detection of α -tocopherol	78
	3.2.4.1. Extraction	78
	3.2.4.2 TLC	79
3.2.5	Antioxidant activity	79
3.2.6	Partial characterization of active principles	80
	3.2.6.1 Solvent extraction	80
	3.2.6.2 UV-Spectrophotometry	80
3.3	Bio-assay of extracts	80
	3.3.1 Spore germination test	80
	3.3.2 Agar cup bio-assay	80
3.4	Anti-hyperglycemic studies	81
	3.4.1 Preparation of plant extracts	81
	3.4.2 Drugs and chemicals	81
	3.4.3 Animals	81
	3.4.4 Induction of experimental diabetes	81
	3.4.5 Treatment	81
	3.4.6 Analytical procedures	87
	3.4.6.1 Measurement of body weight	87
	3.4.6.2 Collection of urine	87
	3.4.6.3 Collection of blood	89
	3.4.6.4 Collection of liver	89
	3.4.7 Biochemical studies	89
	3.4.7.1 Qualitative determination of urine sugar	89
	3.4.7.2 Estimation of blood glucose	89
	3.4.7.3 Quantitative estimation of glycogen	92
	3.4.7.4 Determination of Thiobarbituric Acid Reactive Substances (TBARS)	92
	3.4.7.5 Determination of reduced glutathione (GSH)	92
3.5	Statistical analysis	93

Sl. No.	Particulars	Page No.
4. Experimental		94-151
4.1 Survey of Dakshin Dinjapur district for information on uses of plants in local medicine		94
4.2 Description of the selected plants		108
4.2.1 <i>Clerodendrum viscosum</i>		108
4.2.2 <i>Moringa oleifera</i>		108
4.2.3 <i>Scoparia dulcis</i>		112
4.2.4 <i>Cinnamomum tamala</i>		112
4.3 Qualitative analysis of the phytochemical compounds of the selected plants		112
4.4 Quantitative analysis of the biochemical constituents of the selected plants		116
4.4.1 Alkaloids		116
4.4.2 Proteins		116
4.4.3 Carbohydrates		117
4.4.3.1 Total sugar		117
4.4.3.2 Reducing sugar		117
4.4.4 Phenols		117
4.4.5 Ascorbic acid		119
4.4.6 Carotenoid		119
4.5 Analysis of protein patterns		120
4.6 TLC analysis of α-tocopherol		122
4.7 Antioxidant capacity of different plant extracts		122
4.8 Partial characterization of solvent extracts		122
4.9 Bio- assay of solvent extracts		122
4.10 Effect of plant extracts on induced hyperglycemia in rats		130
4.10.1 Effect of different extracts on changes in body weight in normal and experimental rats		130
4.10.2 Effect of different extracts on urine sugar in control and diabetic rats		135
4.10.3 Effect of different extracts on Fasting Blood glucose in control and diabetic rats		137
4.10.4 Effect of different extracts on glycogen in control and diabetic rats		143

Sl. No.	Particulars	Page No.
	4.10.5 Effect of different extracts on TBARS level in control and diabetic rats	145
	4.10.6 Effect of different extracts on reduced glutathione (GSH) in control and diabetic rats	147
	4.10.7 Correlation analysis	147
5	Discussion	152-165
6	Summary	166-168
	References	169-195
