

CONTENTS

ITEM	TITLE	PAGE NO.
	ACKNOWLEDGEMENT	
	ABBREVIATIONS USED	
	ABSTRACT	1-5
CHAPTER 1	INTRODUCTION	6-14
CHAPTER 2	REVIEW OF LITERATURE	15-58
2.1	Overview of Sericulture	15
2.1.1	Eri culture and NE India	16
2.1.2	Eri culture and the Bodo community	18
2.1.3	Biology and culture of eri silkworm	18
2.1.3.1	Systematic position	18
2.1.3.2	Food plants	19
2.1.3.3	Biology and life-cycle	19
i)	Egg	19
ii)	Larva	20
iii)	Silk gland	20
iv)	Cocoon and pupa	21
v)	Moth or adult	21
2.1.3.4	Rearing techniques	22
2.2	Nutritional constituents of food plant leaves	23
2.3	Rearing performance of eri silkworm on castor and tapioca leaves during different seasons and the quality of cocoons and silk yarns produced	30

ITEM	TITLE	PAGE NO.
2.3.1	Effect of host plants on rearing performance of eri silkworm during different seasons	30
2.3.2	Tensile properties of eri silk yarns produced	40
2.4	The role of eri culture in the socio-economic development of the Bodos in Kokrajhar District	43
2.4.1	Eri culture in helping rural economy	43
2.4.2	Role of women in ericulture	45
2.4.3	Problems in eri culture	49
2.4.4	Other incomes from eri culture	50
i)	Tapioca tuber as food	50
ii)	Eri pupa: a delectable dish of NE India	51
iii)	Other by-product utilization	53
2.4.5	New sericultural R&D technologies adopted in Kokrajhar District	58
CHAPTER 3	MATERIALS & METHODS	59-74
3.1	Materials	59
3.2	Methods	59
<i>3.2.1</i>	<i>Biochemical analysis of host plant leaves</i>	59
3.2.1.1	Determination of total protein content	59
3.2.1.2	Determination of lipid and free amino acid content	60
3.2.1.3	Determination of crude fibre content	62
3.2.1.4	Determination of moisture content	62
3.2.1.5	Determination of total soluble sugar content	63
3.2.1.6	Determination of carbohydrate content	63
3.2.1.7	Determination of total phenol content	63

ITEM	TITLE	PAGE NO.
3.2.1.8	Determination of tannin content	64
3.2.2	Rearing performance of eri silkworms on different host plants during different seasons	64
3.2.2.1	Rearing techniques	65
i)	Young age silkworm rearing	65
ii)	Late age silkworm rearing	65
iii)	Feeding and its frequency	65
iv)	Bed cleaning	67
v)	Matured worm collection and mounting	67
vi)	Harvesting of cocoons	67
3.2.2.2	Observation on the rearing, grainage and post-cocoon parameters	67
i)	Fecundity	67
ii)	Hatching per cent	67
iii)	Larval duration	68
iv)	Mature larval weight	68
v)	Effective rate of rearing (ERR)	68
vi)	Single cocoon weight	68
vii)	Single shell weight	68
viii)	Shell ratio (%)	68
ix)	Count of yarn	69
x)	Tensile properties of yarn	69
3.2.2.3	Statistical analysis	69
3.2.3	Role of eri culture in the socio-economic development of the Bodos in Kokrajhar District	70

ITEM	TITLE	PAGE NO.
CHAPTER 4	RESULTS	75-123
4.1	Biochemical characterization of castor and tapioca leaves	75
4.2	Rearing performance of eri silkworm on castor and tapioca leaves during different seasons and the quality of cocoons and silk yarns produced	80
4.2.1	Effect of host plants on rearing performance of eri silkworm during different seasons	80
i)	Fecundity	80
ii)	Hatching per cent	82
iii)	Larval duration	83
iv)	Mature larval weight	84
v)	Effective rate of rearing (ERR)	85
vi)	Single cocoon weight (male)	87
vii)	Single cocoon weight (female)	88
viii)	Single shell weight (male)	89
ix)	Single shell weight (female)	90
x)	Shell ratio (male)	91
xi)	Shell ratio (female)	92
4.2.2	Effect of host plants on count and tensile properties of eri silk yarns	94
4.3	The role of eri culture in the socio-economic development of the Bodos in Kokrajhar District	96
4.3.1	Plantation area in Kokrajhar District	96
4.3.2	No. of sericultural villages and families in Kokrajhar District	96
4.3.3	Caste of farmers	100
4.3.4	Experience of farmers in sericulture	100
4.3.5	Age of farmers and gender	101

ITEM	TITLE	PAGE NO.
4.3.6	No. of family members of farmers	101
4.3.7	Educational level of farmers	101
4.3.8	Types of sericulture practiced	102
4.3.9	Land holdings of farmers	102
4.3.10	Constraints in eri culture in Kokrajhar District	103
4.3.11	Supports from organizations/departments and its impact on eri culture	103
4.3.12	Demographic characteristics of the respondents for trainings	112
4.3.13	Return from eri culture	114
i)	Production cost per 100 dfls	114
ii)	Mean annual return of a farmer from eri culture	114
iii)	Increase in annual return from eri culture in Kokrajhar District	115
4.3.14	New sericultural R&D technologies adopted in Kokrajhar District in last five years	116
CHAPTER 5	DISCUSSION	124-140
CHAPTER 6	SUMMARY AND CONCLUSIONS	141-144
	FINAL CONCLUSION	145-146
	BIBLIOGRAPHY	147-182
	ANNEXURE	183-185
	LIST OF FARMERS SELECTED FOR THE STUDY	186-196
	LIST OF PUBLICATIONS	197
	COPY OF PUBLISHED PAPERS	
	PLAGIARISM CERTIFICATE	