

TABLE OF CONTENTS

Declaration	i
Acknowledgements	ii
Abstract	iii
1. Introduction	01
2. Literature Review	05
2.1 Production and mineral composition of crepe rubber factory effluents.	05
2.1.1 Production of factory effluents	05
2.1.2 Composition of factory effluents	06
2.2 Pollution caused by the factory effluents	07
2.3 Agronomic potential of rubber factory effluents	08
2.4 Soil - Plant relationships	12
2.4.1 Soil - plant relationships in rubber plantations	12
2.4.2 Soil - plant relationships in paddy cultivation	17
3. Materials and methods	23
3.1 Experiment 1 - Pot trial for young rubber	23

3.1.1	Experimental	23
3.1.2	Growth assessments	24
3.1.3	Assessment of mineral composition of leaves	25
3.1.4	Assessment of soil parameters	26
3.2	Experiment 2 - Field trial for mature rubber	29
3.2.1	Experimental	29
3.2.2	Assessment of mineral composition of leaves	35
3.2.3	Assessment of chemical characteristics of soil	36
3.2.4	Assessment of soil moisture content in the field	36
3.2.5	Assessment of yield	36
3.2.6	Assessment of mineral composition of latex	37
3.3	Experiment 3, 4, 5 and 6 - Pot trials for paddy	38
3.3.1.	Experimental	38
3.3.2	Experiments 3 and 4	39
3.3.2.1	Experimental	39
3.3.2.2	Growth assessments	41

3.3.2.3	Assessment of mineral composition of leaves	41
3.3.2.4	Assessment of pH of the soil	42
3.3.2.5	Assessment of yield	42
3.3.3	Experiment 5	42
3.3.3.1	Experimental	42
3.3.3.2	Growth assessments	43
3.3.3.3	Assessment of mineral composition of leaves	43
3.3.3.4	Assessment of soil parameters	44
3.3.4	Experiment 6	44
3.3.4.1	Experimental	44
3.3.4.2	Growth assessments	45
3.3.4.3	Assesment of soil pH	45
4.	Results	46
4.1.	Experiment 1.	46
4.1.1	Growth parameters	46
4.1.2	Soil parameters	58

4.1.3	Mineral composition of leaves	61
4.2	Experiment 2	64
4.2.1	Chemical characteristics of soil	64
4.2.2	Soil moisture content in the field	66
4.2.3	Latex yield of rubber	68
4.2.4	Mineral composition of leaves	68
4.2.5	Mineral composition of latex	72
4.3	Experiment 3	73
4.3.1	Growth parameters	73
4.4	Experiment 4	77
4.4.1	Growth parameters	77
4.4.2	Mineral composition of leaves	83
4.4.3	Grain yield of paddy	93
4.4.4	Soil pH measurements	93

4.5	Experiment 5	93
4.5.1	Growth parameters	93
4.5.2	Mineral composition of leaves	104
4.5.3	Soil parameters	105
4.6	Experiment 6	107
4.6.1	Growth parameters	107
4.6.2	Soil pH measurements	116
5.	Discussion	117
5.1	Rubber	117
5.2	Paddy	123
6.	Conclusion	128
7.	Literature cited	130