

PERMANENT REFERENCE

EFFICIENCY OF *Typha latifolia* AS CONSTRUCTED WETLANDS ON THE TREATMENT OF RICEMILL WASTEWATER UNDER DIFFERENT COD STRENGTH

BY

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A RESEARCH REPORT
SUBMITTED IN PARTIAL FULLFILMENT OF THE
REQUIRMENTS FOR THE ADVANCED COURSE

IN

AGRICULTURAL ENGINEERING

FOR
THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN
AGRICULTURE

FACULTY OF AGRICULTURE
EASTERN UNIVERSITY, SRILANKA

DECEMBER 2002

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ABSTRACT

A study was carried out to check the efficiency of common cattail (*Typha latifolia*) on the treatment of wastewater from rice mills at Eravur with different COD strength for three months. From the literatures, this particular plant has been used to treat the variety of wastewater around the world.

Following lack of investment in wastewater treatment, high investment and maintenance cost, conventional treatment systems have not been used in Sri Lanka. There are several methods used to treat the wastewater but the adoption of those methods depends on the type of waste material such as liquid waste solid waste and gaseous wastes. One of the methods of achieving compliance using conventional treatment system at low cost producing treated water, pollution free and fostering a community responsibility for wastewater treatment involves the use of natural or constructed wetlands. For many years constructed wetlands have been used successfully to treat the municipal wastewaters.

In this study, waste water from rice mill at Eravur were collected and different COD strength of wastewater such as 2000, 4000, 6000, 8000, and 10000 mg/l were prepared according to the raw wastewater COD strength, by adding the glucose to concentrate the wastewater or dilute the wastewater by adding required amount of water. During this study different COD strength wastewaters were fed to the different treatment unit containing *Typha latifolia* as a wetland crop. Plants were planted in broad plastic basins with a soil depth of one foot with the retention time of one day.

CONTENTS

	Page No.
ABSTRACT	
ACKNOWLEDGEMENT	
CONTENTS	i
LIST OF TABLE AND FIGURES	v
ABBREVIATIONS	vi
Chapter 1 – Introduction	01
1.1 General.....	1
1.2 Using constructed wetlands for wastewater treatment.....	3
1.3 Objectives of the study.....	4
Chapter 2 –Review of Literature	05
2.1 History of wastewater generation.....	5
2.2 Wastewater generating sites in Srilanka.....	7
2.3 Sources of wastewater in the Batticaloa region.....	8
2.3.1 Rice mills.	8
2.3.2 Prawn farms	10

2.3.3 Slaughter houses	10
2.3.4 General / District hospitals.....	12
2.3.5 Service stations.....	12
2.3.6 Textile mills.....	13

Chapter 3 – Materials and Methods

39

2.4 Types of water pollutants and their effects.....	14
2.4.1 Oxygen demanding wastes	15
2.4.2 Disease causing agents.....	17
2.4.3 Synthetic organic compounds.....	18
2.4.4 Plant nutrients.....	18
2.4.5 Inorganic chemicals and minerals.....	20
2.4.6 Sediments.....	21
2.4.7 Radioactive substances.....	22
2.4.8 Thermal discharges.....	23
2.4.9 Oil	24

Chapter 4 – Results and Discussion

43

2.5 Problems to Batticaloa lagoon by wastes and wastewater.....	25
2.6 Wastewater treatment methods.....	27
2.6.1 Primary treatment.....	28
2.6.2 Secondary treatment.....	30
2.6.3 Advanced wastewater treatment.....	31
2.6.4 Anaerobic wastewater treatment.....	32
2.6.5 Constructed wetlands for wastewater treatment.....	33

2.6.5.1 Types of wetland treatments.....	36
2.6.5.2 Importance of constructed wetlands.....	36

Chapter 3 – Materials and Methods 39

3.1 Location of the research.....	39
3.2 Experiment.....	39
3.3 Parameters analyzed	40
3.3.1 Chemical Oxygen Demand (COD).....	40
3.3.2 pH.....	41
3.3.3 Total Suspended Solids (TSS).....	41
3.3.4 Conductivity	42
3.3.5 Data analysis	42

Chapter 4 – Results and Discussion 43

4.1 Temperature.....	43
4.2 Performance of <i>Typha</i> on COD removal efficiency.....	44
4.3 Performance of <i>Typha</i> on neutralizing the pH.....	45
4.4 Effluents conductivity.....	46
4.5 Performance of <i>Typha</i> on TSS removal efficiency.....	47
4.6 Tillering ability.....	48

ACKNOWLEDGEMENT

Results obtained in this study showed different performances: treatment of COD- 8000 (mg/l) strength showed a good purifying efficiency mainly the COD removal efficiency of 96.1% and good tiller production. The best neutralizing pH results obtained in the treatment of COD-10,000 mg/l, high removal efficiency of TSS achieved at the treatment of COD-2000 mg/l.

I am deeply indebted to Dr. S. Raveendranath, Head, Faculty of Agriculture, EUSL for giving me an opportunity to undertake this project study and for his reading through all my reports. I extend my deepest appreciation for his encouragement, valuable guidance, suggestions and advices, provided during the whole study period with valuable reference materials and necessary information in completing this project work.

My special thanks to Dr. (Mrs) J. E. Misra, Head, Agronomy, Faculty of Agriculture for giving this opportunity to carry out this research work.

I am deeply indebted to Dr. S. Raveendranath, Head, Faculty of Agriculture, EUSL for having kindly granted permission and providing the necessary facilities to carry out this project successfully.

My sincere thanks go to Dr. (Miss) J. S. Srinivas, Head, Department of Animal science, Faculty of Agriculture, EUSL for giving me an opportunity to use the Animal science laboratory.

I take pleasure in expressing my sincere thanks to Mr. Sankaranarayanan, Temp. Asst. Lecturer, Faculty of Agriculture, EUSL and Miss. M. Sugirtha, Temp. Asst. Lecturer, Faculty of Agriculture, EUSL, for their valuable services during the project period and assistance offered in the preparation of this project report.