

**COMPARISON OF SOIL ORGANIC CARBON STOCK  
OF MANGROVE ECOSYSTEM AND PADDY  
AGRICULTURAL LAND IN SATHURUKONDAN,  
BATTICALOA DISTRICT**



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## ABSTRACT

Present study was aimed to assess and compare the soil organic carbon stock of mangrove ecosystem and paddy agricultural land in Sathurukondan. This study was carried out from July 2023 to December 2023. Soil samples were collected from both study sites at 30cm depth from top layer and further divided into three subsamples for the analysing purpose. Sampling locations also marked while sample collection. Soil organic carbon content (%) was estimated by using Walkley and Black titration method manually and soil organic carbon stock was calculated. One way ANOVA statistical results revealed that there is a significance differences ( $P < 0.05$ ) in the mean soil organic carbon stock of mangrove ecosystem and paddy agricultural land. The mean soil organic carbon stock of the mangrove ecosystem in Sathurukondan is  $44.16 \pm 7.56$  tC/ha in 0 – 10 cm soil layer,  $36.83 \pm 12.27$  tC/ha in 10 – 20 cm soil layer and  $35.18 \pm 8.32$  tC/ha in 20 – 30 cm soil layer. The mean soil organic carbon stock of the paddy agricultural land in Sathurukondan (near to mangrove ecosystem) is  $22.24 \pm 8.18$  tC/ha in 0 – 10 cm soil layer,  $19.96 \pm 6.15$  tC/ha in 10 – 20 cm soil layer and  $21.29 \pm 4.57$  tC/ha in 20 – 30 cm soil layer. The soil organic matters take major part in the organic carbon stock of soil. Finding elucidated that higher soil organic carbon stock was recorded in mangrove ecosystem, it is higher than all three layers of soil when compare to respected layers of paddy agricultural land soil. Mangrove ecosystem known as Blue carbon ecosystem. They can absorb carbon from atmosphere and store it with their biomass. Due to human activities mangrove ecosystem face threats and destruction of mangroves are highly effect the soil organic carbon accumulation. In the paddy agricultural land fertilizer usage, tillage, climate also change the soil organic carbon accumulation. Appropriate methods of mitigating by raising awareness to save the mangrove environment in order to preserve carbon sequestration is important.

## TABLE OF CONTENTS

ABSTRACT .....	i
ACKNOWLEDGMENT .....	ii
DECLARATION.....	iii
TABLE OF CONTENT.....	iv
LIST OF FIGURES .....	vii
LIST OF PLATES .....	viii
LIST OF TABLES .....	ix
LIST OF ABBREVIATIONS .....	x
LIST OF APPENDIXES .....	xi
CHAPTER 1 .....	1
1.0 INTRODUCTION.....	1
1.1. Soil .....	1
1.2. Soil organisms and Soil food web.....	1
1.3. Soil Organic Matter (SOM).....	2
1.4. Soil Organic Carbon (SOC) .....	3
1.5. Carbon dioxide (CO <sub>2</sub> ) and Global climate change.....	4
1.6. Biological Carbon Sequestration.....	4
1.7. Mangrove ecosystem in Sri Lanka .....	5
1.7.1. Soil properties of mangrove ecosystem .....	5
1.7.2. Plant carbon (C) content .....	7
1.7.2.1. Above ground biomass of mangroves.....	7
1.7.2.2. Below ground biomass of mangroves.....	7
1.7.3. Organic carbon inputs of mangrove ecosystem .....	8
1.8. Agricultural land in Sri Lanka.....	8
1.8.1. Soil properties of paddy agricultural land.....	8

1.9.	Soil organic carbon in the global carbon cycle .....	9
1.9.1.	Soil Organic Carbon stock of mangrove ecosystem.....	10
1.9.2.	Soil Organic Carbon stock of paddy land.....	10
1.10.	Challenges to mangrove ecosystem .....	10
1.11.	Objectives of the study .....	11
<b>CHAPTER 2 .....</b>		<b>12</b>
<b>2.0 MATERIALS AND METHODS .....</b>		<b>12</b>
2.1.	Study area.....	12
2.2.	Soil sample collection .....	13
2.2.1.	Soil sample collection in Sathurukondan Mangrove ecosystem.....	13
2.2.2.	Soil sample collection in paddy agricultural land.....	14
2.3.	Soil chemical characteristics .....	15
2.3.1.	Soil pH measurement.....	15
2.4.	Soil sample analysis, soil carbon contents .....	15
2.5.	Measure weight and volume of the soil .....	15
2.6.	Soil physical characteristics .....	16
2.6.1.	Soil Bulk Density (SBD) .....	16
2.7.	Soil sample analysis for estimation of soil organic carbon (%).....	17
2.8.	Estimation of organic carbon (OC) content (%) in soil .....	22
2.9.	Estimation of organic matter (%) in soil .....	22
2.10.	Estimation of soil organic carbon stock .....	23
2.11.	Data Analysis .....	23
<b>CHAPTER 3 .....</b>		<b>24</b>
<b>3.0 RESULTS AND DISCUSSION .....</b>		<b>24</b>
3.1.	Characteristics of the mangrove ecosystem in Sathurukondan area .....	24
3.2.	Characteristics of the paddy agricultural land.....	24

3.3. Soil chemical characteristics .....	24
3.3.1. Soil pH .....	24
3.4. Soil physical characteristics .....	25
3.4.1. Comparison of soil bulk density among mangrove soil and paddy soil	25
3.5. Comparison of OC (%) in mangrove soil and paddy agricultural land soil	27
3.6. Comparison of OM % in mangrove soil and paddy land soil .....	30
3.7. Comparison of Soil Organic Carbon Stock of mangrove, paddy soil .....	32
<b>CHAPTER 4</b> .....	<b>36</b>
<b>4.0 CONCLUSION</b> .....	<b>36</b>
<b>CHAPTER 5</b> .....	<b>37</b>
<b>5.0 LIMITATIONS AND RECOMMENDATION</b> .....	<b>37</b>
5.1. Limitations .....	37
5.2. Recommendations .....	37
<b>CHAPTER 6</b> .....	<b>38</b>
<b>6.0 REFERENCES</b> .....	<b>38</b>
<b>APPENDIXES</b> .....	<b>48</b>