

**ASSESSING THE POTENTIAL OF COMPOSTING SLUDGE
GENERATED FROM WATER TREATMENT PLANT**



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ABSTRACT

Most water treatment plants produce large amounts of sludge resulting from drinking water treatment processes such as flocculation and filtration. As disposal of the sludge is becoming expensive and difficult because of the limited available land for disposal and the high landfill tipping fee, beneficial use options have been proposed for the materials. For applications where the sludge is placed in direct contact with the environment, concerns have been raised by regulators concerning the chemical characteristics of the sludge and potential risks to humans and the environment. To address this concern, drinking water sludge must be properly characterized for chemical and physical compositions and find out alternative ways to utilize it for agricultural purposes. For this study purpose, the sludge was collected from the Vavunathivu drinking water treatment plant from February 2023 and analyzed physical and chemical parameters by adopting standard analytical methods.

Sludge, a byproduct of wastewater treatment plants, is a valuable material for composting because of its high nutritional content of the material. It is important to define the physical and chemical features of sludge before using it in composting to verify its acceptability for usage. The purpose of this study is to present a summary of sludge characterization techniques, such as, pH, EC, moisture content, temperature, and nutrient content such as N,P,K and Total Carbon that can be used to evaluate sludge quality for composting. Sludge characterization is a crucial step in determining the suitability of sludge for compost making.

When considering the results, the color was darkened with the weight range of sludge. Samples had a finer texture than regular compost. The pH values were increased with

the sludge rate. All the 5 treatments were within the standard pH range (5.5-8.0). The EC of composts showed high variations respectively,

The study also stresses the significance of following adequate handling and safety measures when utilizing sludge in composting and evaluates the potential risks involved. Based on the findings of this study, sludge may be a useful resource for composting; nevertheless, proper characterization and monitoring are required to guarantee the compost's safety and quality.

Key words: sludge, water treatment plant, flocculation, compost, pH, EC, Total Carbon.

TABLE OF CONTENTS

ABSTRACT	i
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	vii
ABBREVIATION	ix
CHAPTER 01	1
INTRODUCTION	1
1.1 Background	1
CHAPTER 02	6
REVIEW OF LITERATURE	6
2.1 Water Treatment Plant	6
2.1.1 Water Treatment Plants worldwide	7
2.1.2 Water Treatment Plants in Sri Lanka	8
2.2 Water Treatment Sludge	10
2.2.1 Sludge Disposal	11
2.2.2 Sludge Management	12
2.2.3 Sludge Treatment and Management Methods	13
2.2.4 Water Treatment Plant Sludge characterization	15

2.2.5 Nutrient Contents of water treatment sludge	17
2.3 Compost.....	17
2.3.1 Compost Processing Types	18
2.4 Factors that Controlling the Composting Process	23
2.4.1 Carbon/Nitrogen Ratio	23
2.4.2 Moisture Content.....	24
2.4.3 Temperature	24
2.4.4 Aeration.....	25
2.4.5 pH.....	25
2.4.6 Electrical Conductivity (EC).....	26
2.5 Sludge based Compost Uses in Agriculture	26
CHAPTER 03	28
MATERIALS AND METHOD	28
3.1 Description of the Study Area	28
3.2 Sample Collection.....	28
3.3 Preparation of Bins	29
3.3 Experimental Design.....	30
3.4 Experimental Materials.....	31
3.4.1 Water Treatment Plant Sludge	32
3.5 Experimental Procedure.....	32
3.5.1 Laboratory Procedures	32
3.5.2 Composting Experiment Method	34

3.5.3 Physico-chemical Analysis	35
3.6 Statistical Analysis	36
CHAPTER 04	37
RESULTS AND DISCUSSION	37
4.1 Changes of physical and chemical properties parameters during composting.	37
4.2 Variation of Temperature.....	37
4.3 Variation of Moisture Content (MC%)	39
4.4 Variation of pH.....	41
4.5 Variation of EC	42
4.6 Chemical characteristics of final compost.....	44
CHAPTER 05	47
CONCLUSION	47
REFERENCE.....	48
APPENDIX.....	57

LIST OF TABLES

Table 2.1: Microproperties and Macroproperties of sludge (source: (Dharmappa, Hasia, and Hagare, 1997).....	16
Table 3.1: Details of Treatment	30
Table 3.2: Characterization of raw WTS	32
Table 4.1: Variation of Temperature among different treatments from 1st week to 6th week	37
Table 4.2: Variation of MC among different treatments from 1st week to 6th week	39
Table 4.3: Variation of pH among different treatments from 1st week to 6th week .	41
Table 4.4: Variation of EC among different treatments from 1st week to 6th week .	43
Table 4.5: Nutrient content of compost initial to final stage.....	45

LIST OF FIGURES

Figure 2.1: Process alternative for sludge treatment and disposal	15
Figure 3.1: Sample collection	29
Figure 3.2: Plastic bin	29
Figure 3.3: Layout of the experimental design	31
Figure 3.4: Experimental area	31
Figure 4.1: Variation of temperature among different treatments from 1st week to 6th week	38
Figure 4.2: Variation of MC among different treatments from 1st week to 6th week	40
Figure 4.3: Variation of pH among different treatments from 1st week to 6th week	42
Figure 4.4: Variation of EC among different treatments from 1st week to 6th week	43