



2021-2022

Project Report on
"USE OF VERMICOMPOST AS A COMPOSITE
MATERIAL IN MANUFACTURING OF FLY ASH BRICKS"

Submitted in partial fulfillment of the requirement for the award of degree

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted by

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DECLARATION

We, by DODDANAGOUDA POLICE PATIL (ISV18CV013), HRUTHVIK P (ISV18CV017), POOJA M (ISV18CV027), AASIMA SULTANA (ISV19CV400), students of 8th semester BE in Civil engineering, Shridevi Institute of Engineering and Technology, Tumkuru-572106, hereby declare that the seminar report entitled "USE OF VERMICOMPOST AS A COMPOSITE MATERIAL IN THE MANUFACTURING OF FLYASH BRICKS " submitted to Visvesvaraya Technological University, during the academic year 2021-2022, is a record of an original work done by us under the guidance of Ms. NIRANJANI B Assistant Professor, Department of civil engineering Shridevi Institute of Engineering and Technology, Tumkuru. This report is submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in civil engineering. The results embodied in this project report have not been submitted to any other university or institute for the award of any degree.

Place: Tumkuru

Date:

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ABSTRACT

Green waste is an important fraction of urban greening and recently composting of which is challenging due to presence of ligno cellulosis, which is responsible to slow down the decomposition rate. Green waste has traditionally either been burnt in open streets or disposed with other waste thereby resulting in landfills. These practices result in large amount of greenhouse gases and occupy land which could have been used for agriculture. Vermicomposting has recently received attention as an environmentally friendly approach for efficient management and disposal of organic waste. It involves bio-oxidation and stabilization of organic material under aerobic and mesophilic conditions through the combined action of earthworms and microorganisms.

The objective of this study was to compare the waste decomposed using different species of earthworms. Comparison with the control, lignin degradation rate was enhanced. There was increase in all the soil nutrients- pH(27%), EC(32%), TOC(22.2%), Nitrogen(28%), Phosphorous(30%) and Potassium(33%) .The results indicated that *Eisenia fetida* was more efficient in bioconversion of green waste into nutrient rich vermicompost.

Raw materials is necessary in construction. Due to the increase in construction activities, the raw material utilization is also increased, which may lead to depletion of the resources. The usage of M sand also increases day by day. On the other side, waste disposal is posing a major threat to environment and human health. This paper shows the investigation carried out in manufacturing fly ash bricks made by utilizing vermicompost as an alternative material for M sand, the physical and chemical properties of M sand and vermicompost are studied and they are to be the same. In this study, an attempt is made to check the feasibility of replacement of vermicompost for M sand in brick making. The brick specimens are casted as per the mix proportions and they are tested for strength and durability at the age of 28 days. It has been identified that the vermicompost replacement at 5% and 10%, the compressive strength of the brick is 7.90 and 7.31% respectively, which is found to be nearer to the strength of the control specimen and the water absorption for all the mixes of the brick casted were below 20% as per IS code. Inclusion of vermicompost in the fly ash brick will tend to reduce the use of M sand.

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