



**EXPERIMENTAL INVESTIGATION ON PARTIAL  
REPLACEMENT FINE AGGREGATE BY GRANITE DUST  
WITH CONNUTSHELL POWDER IN A CONCRETE  
PAVER BLOCK**



**A PROJECT REPORT**

*Submitted by*

**C.KALAIVANAN**

**(710419103011)**

**K.KAVIYA**

**(710419103012)**

**P.PUSHPARAJ**

**(710419103016)**

*in partial fulfillment for the award of the degree*

*Of*

**BACHOLAR OF ENGINERING**

**IN**

**CIVIL ENGINEERING**


**CHRIST THE KING ENGINEERING COLLEGE**

**COIMBATORE – 641 104**

**ANNA UNIVERSITY: CHENNAI 600 025**

**MAY 2023**

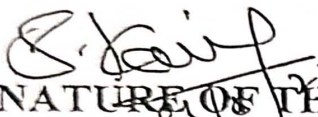


  
**Dr. M. JEYAKUMAR, M.E., Ph.D.**  
**PRINCIPAL**  
**CHRIST THE KING ENGINEERING COLLEGE,**  
Chikkarempalayam Village,  
Karamadai, Metturpalayam Taluk,  
Coimbatore - 641 104.

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

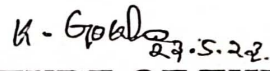
Certified that this project report "EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF FINE AGGREGATE BY GRANITE DUST WITH COCONUT SHELL IN A CONCRETE PAVER BLOCK is the bonafide work of **C.KALAIVANAN** (710419103011), **K.KAVIYA** (710419103012), **P.PUSHIPARAJ** (710419103016)

  
SIGNATURE OF THE HOD

Mr.S.KARTHIK, ME, (Ph.D)

HEAD OF THE DEPARTMENT

Department of Civil Engineering  
Christ the King Engineering College.  
Coimbatore-641104.

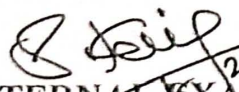
  
SIGNATURE OF THE GUIDE

Mrs. K. GOKILA M.E.,

ASSISTANT PROFESSOR


Department of civil Engineering  
Christ the King Engineering College.  
Coimbatore-641104

Submitted for the project viva voice held on 23/05/2023

  
INTERNAL EXAMINER



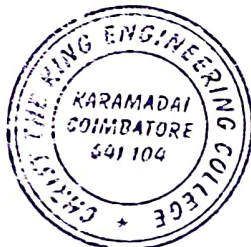
  
EXTERNAL EXAMINER


  
Dr.M.JEYAKUMAR, M.E..Ph.D.  
PRINCIPAL  
CHRIST THE KING ENGINEERING COLLEGE,  
Chikkarampalayam Village,  
Karamadal, Mertupalayam Taluk,  
Coimbatore - 641 104.

## ABSTRACT

The development of technologies requires the utilization of waste products from the industries. The cost of the conventional building materials is increasing day by day. So it is necessary to research for alternative construction materials. In this experimental investigation granite waste and coconut shell powder is used in the concrete paver blocks. Granite processing industries generates large amount of wastes. The granite waste is partially replaced with fine aggregate in a concrete paver block. India is the third largest coconut producing country in this world. Huge amount of waste is generated by coconut. Coconut shell powder is a potential construction material and it simultaneously reduces the environmental problem of solid waste. The paver block is manufactured by 0%, 15%, 25%, 35% and 45% replacement of fine aggregate by granite powder and 5% of coconut shell powder is added to each proportion. Compressive strength test were conducted on all the test specimens at 7 days, 14 days and 28 days' time period of curing. Based on the compressive strength test on specimens of various proportions with granite waste and coconut shell powder is compared with conventional paver blocks. It is concluded that the concrete with 25% replacements possess great strength. Hence granite and coconut shell powder are considered as a recycled materials.

**Keywords:** Granite powder, Coconut shell Powder, recycled material, compressive strength.

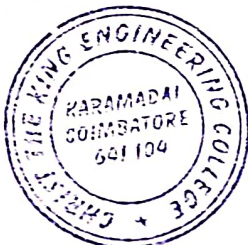



  
Dr. M. JEYAKUMAR, M.E..Ph.D.  
PRINCIPAL  
CHRIST THE KING ENGINEERING COLLEGE,  
Chikkarampalayam Village,  
Karamadai, Mettupalayam Taluk,  
Coimbatore - 641 104.

## CONCLUSION

Based on the experimental investigation the following conclusions are drawn.

- It was observed that the strength was increased with partial replacement of fine aggregate with granite powder and also it is feasible to replace into the concrete.
- According to the compressive strength test results, 7 days, 14 days and 28 days strength has been studied which increases gradually at replacement of granite powder up to 25% and slightly decreases at 45% than the conventional concrete.
- The optimum percentage of M-Sand replaced by Granite Powder was found and the optimum percentage was 25%.
- The compressive strength of paver blocks is 25.99 N/mm<sup>2</sup> for conventional concrete and 35.68 N/mm<sup>2</sup> for Granite Powder concrete which is 9.69% more.



  
Dr. M. JEYAKUMAR, M.E., Ph.D.  
PRINCIPAL  
CHRIST THE KING ENGINEERING COLLEGE,  
Chikkarampalayam Village,  
Karamadai, Mertupalayam Taluk,  
Coimbatore - 641 104.