USAGE POTENTIAL OF BAGASSE ASH AS A SUBSTITUTE MATERIAL FOR CEMENT CONCRETE

(Sponsored by KSCST, Bangalore)

PROJECT REPORT

Submitted by

VISHWANATHA K.R. MOULYA H.V.
RATHAN K.A. SUCHARITHA K.

In partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

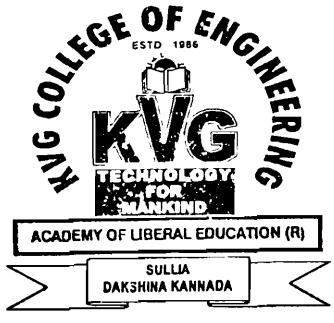
IN

CIVIL ENGINEERING

(Visvesvaraya Technological University)

Under the Guidance of

Mr. MANEETH P.D. B.E., M.Tech.
Asst. Professor
Prof. CHANDRASHEKHAR A., B.E. M.Tech. (Ph.D). MIT. MISTE
Head of the Department



Department of Civil Engineering

K.V.G. College of Engineering

SULLIA, D.K. 574327, KARNATAKA

2012-2013

ABSTRACT

Concrete is a versatile construction material has been used in many Civil Engineering applications. As the constituent materials become scarce, search for new material is on and lots of research is done to find alternative material. River sand is commonly used fine aggregates in concrete which supposed to be available abundantly, become costly due to exploitation of material and unaffordable. Hence there is an urgent need to find suitable alternate material without compromising the quality and strength of concrete. Industrial waste materials are the best candidate for such materials. Sugar-cane bagasse is a fibrous waste-product of the sugar refining industry used to generate energy by burning (uncontrolled combustion) and the left out product is sugarcane Bagasse ash. This waste product (Sugar-cane Bagasse ash) is causing environmental pollution, which calls for urgent ways of handling the waste. As this waste is coarser in nature, it can be used as fine aggregates in concrete. In this study, Bagasse ash has been chemically and physically characterized, and replaced the river sand partially in the ratio of 0%, 5%, 10%, 15%, 20% and 25% by weight in concrete. Concrete of grade M30 was considered and control mix designed using IS 10262-2009. Compaction factor and slump cone tests results were consider to know the workability of fresh concrete and mechanical strength properties at the age of 3,7 and 28 days for hardened concrete were considered for the study and compared with control mix. The results are quite promising to use Bagasse ash as partial replacement to fine aggregate.

Key words: sugarcane bagasse ash (SCBA), Fine aggregate, workability, compressive strength, flexural strength, split tensile strength.