

SUGARCRETE

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Abstract - Utilization of industrial and agricultural waste products in the industry has been the focus of research for economic, environmental reasons. Sugarcane bagasse is a fibrous waste-product of the sugar refining industry. With 0%, 5%, 10%, 15% and 20% replacement. These bricks were tested in Compression stand Water absorption test as per Indian Standards. The aim of this research was to make economical and green bricks to maintain environmental balance, and avoid problem of ash disposal.

1. INTRODUCTION

We can create SugarCrete as well as Sugar Crete block with use of sugarcane bagasse.

Waste Product: Sugar Crete is made using Bagasse, which is a byproduct of Sugar Cane processing.

Bio-material: Just like Hempcrete, Sugar Crete is a plant-based product and has a negative carbon footprint value.

Created by mixing the sugarcane fibers left over after sugar sap extraction, known as bagasse, with bespoke sand-mineral binders.

It is a material which has the potential to be used and re-used in new or existing structures, replacing both brick and concrete.

Advantages

Bio-material: Hemp bricks are made out of Hemp, which is a plant based product, resulting in a carbon negative end product.

Waste Product: Sugarcrete is made using Bagasse, which is a byproduct of Sugar Cane processing.

Bio-material: Just like Hempcrete, Sugarcrete is a plant based product and has a negative carbonfootprint value.

Compressive Strength: Sugarcrete bricks have good compressive strength, making them suitable for low-rise construction

2. OBJECTIVES

- To determine the properties of sugarcane fiber.
- To study behavior of concrete after mixing with sugarcane fiber.
- To compare the results with normal bricks.

3. METHODOLOGY

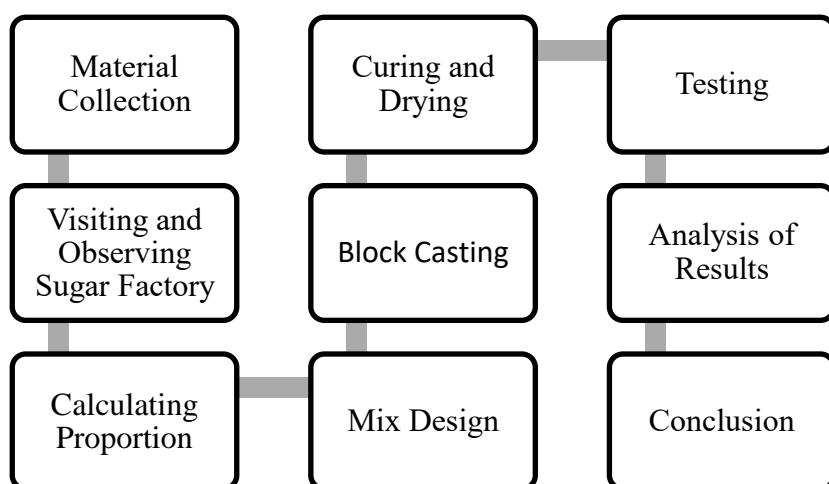


Fig. 1 Methodology



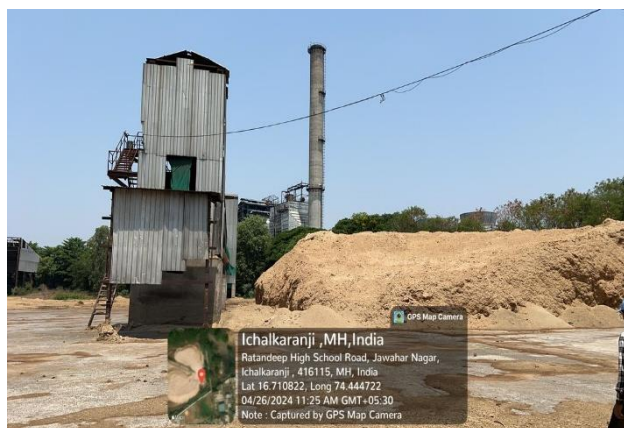
4. PROPERTIES OF SUGARCANE FIBER

Property	Value
Colour	Golden
Density	1.25(g/cm ³)
Cut length	11-15mm
Average Diameter	0.3mm
Water Absorption	261%
Tensile Strength	202-265(Mpa)

TABLE 1. Sugarcane Properties

5. Visit:

- Location: Deshbhakta Ratnappanna Kumbhar Panchganga Sahakari Sakhar Karkhana Limited.



6.MATERIAL USED:

- Cement
- Sugarcane fiber

- Sand
- Aggregate
- Water

7. PROPORTION

For 10% Replacement of cement by Sugercane Fiber

Cement = 1.36kg

Sugercane fiber = 0.151kg

Sand = 1.51kg

Aggregate = 3.03kg

Water = 0.7lit

For 20% Replacement of cement by Sugercane Fiber

Cement = 1.21kg

Sugercane fiber = 0.303kg

Sand = 1.51kg

Aggregate = 3.03kg

Water = 0.75lit



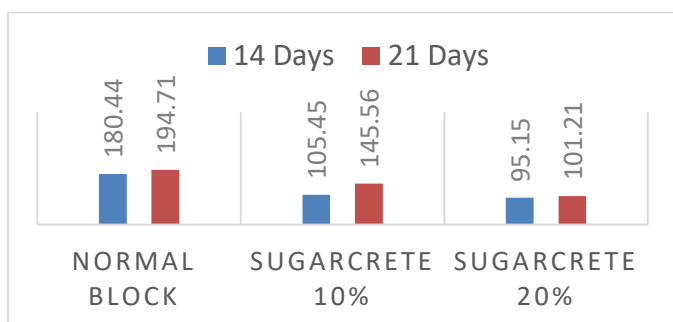
8.TEST RESULTS:

The results obtained are in graph and in the table form.

Block	Percenta ge of Sugarcane fiber	Compres sive strength (Kn) 14 days	Compressive strength (Kn) 21 days
Block no. 9	10	105.45	145.56
Block no. 10		104.13	136.86
Block no. 11	20	95.15	101.21
Block no. 12		92.40	98.38

• Comparative result of compressive strength

Days	Normal Block	Sugarcrete Block 10%	Sugarcrete Block 20%
14 days	180.44	105.45	95.15
	179.16	104.13	92.40
21 days	194.71	145.56	101.21
	188.57	136.86	98.38



GRAPH OF RESULT

ACKNOWLEDGEMENT

We would like to express our gratefulness and sincere gratitude to my guide **Ms. A. D. Ware**, for guiding us to accomplish this project work. It was our privilege and pleasure to work under her guidance, we are indeed grateful to her for providing helpful suggestion, from time to time. Due to her constant encouragement and inspiration. we are able to present this project. We are thankful to our parents for their moral as well as financial support.

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Bagasse as an effective replacement in fly ash bricks
Have publish in paper “bagasse an effective replacement in fly ash brick”.
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Study on utilization of waste material for construction brick

7.CONCLUSION:

- The sugarcrete has typically lower compressive strength compared to traditional concrete block.
- It offers a reduction in weight of blocks.
- Sugarcrete emerges as a promising sustainable alternative in the construction industry, particularly in low rise buildings and insulation applications. From the conducted study, the density of Sugarcrete Blocks was recorded at 2248kg/m³, significantly lighter compared to 2423kg/m³ density of traditional concrete blocks.