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Use of Waste Sugarcane Ash and Brick Dust in Composite Concrete

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Abstract: In this advanced period the interest of cement is at its pinnacle, this addition sought after of binder is a direct result of fast increment in populace, subsequently usage of cement and aggregates goes on increments consistently . The utilization of concrete is expanding quickly, because of the fast increments in populace. The generation of cement hazardously affects nature, as amid the assembling of concrete, expansive measure of green house gases are shot out from the assembling plant. Cement is most vital element of concrete.

Likewise the accessibility of waterway sand is abbreviated, as the wellspring of stream sand goes on ceaseless decrement. This additionally prompts dangers impact on indigenous habitat and wind up real worry for society around the world. With the goal that scientists everywhere throughout the world attempt to locate an elective method for using mechanical or back waste in development reason, and thus this outcome in financial development and gives power over condition contamination.

Key Word: Brick dust, Sugar ash , SCBA

1. INTRODUCTION

Cement is the most basic element of concrete without of it no possibility of concrete is achieved. Current word is moving quickly and populace is increments unexpectedly with these sudden addition increments in production of concrete are at its best, which results in harmful condition. With the end goal to diminish the impact of these squanders, use of these losses for development design is better choice, which results in decrease in fast expanded interest in cement and

aggregates in the concrete and furthermore the emulsion of greenhouse gases amid assembling of concrete is lessened to some degree

My investigation concentrating on usage of agro squander i.e. sugar stick bagasse ash (SCBA) and brick dust (Surkhi) in cement instead of halfway substitution of cement and fine aggregates. Which therefore lessen the impact of these squanders and the assembling of cement are done in controlled way and non accessibility of sand is to some degree satisfied by brick dust. This usage of the squanders decreases the expense of development basic as well as lessens the hurtful impact on nature, since assembling of concrete prompts launch of destructive green houses gases.

As of now, there has been endeavor to usage of bagasse ash, the buildup from sugar industry and biomass fuel in electric age businesses

2. EXPERIMENTAL PROCEDURE

2.1 SURARCANE ASH: This waste material has found to have great beneficial cementations materials; this trademark property of waste baggage fiery debris is because of essence of extensive measure of SiO2 roughly 66.89% this level of sio2 shift rely on the dirt utilized for development of sugarcane

Table 01 Physical Property of Sugar Cane ash

Density (g/cm3)	.4	.59
Specific gravity	1.8	1.85
Fineness passing 45 μm	95	99
Mean grain size(μm)	5.1	5.4

2.2 BRICK DUST (SURKHI): In past, the term surkhi was utilized for generally differing materials as for arrangement, temperature of consuming, fineness of granulating and so on. Presently the phrasing "calcined mud pozzolana" is utilized rather than word surkhi, giving particular property and structure to this development material

2.3 Cement: In this investigation Ordinary Portland cement of review 43 is utilized, according to IS 11269-2013 .Specification identified with quality according to Indian guidelines accomplishes

compressive quality of 43 Mpa at 28 days. Cement is collected from RMC Plant near Lovely Professional University.

2.4 Sand and Aggregate: locally available sand used from zone III and The size of aggregates used in this study is 10mm and 20mm with grading zone 2.

Table 02 : Sieve analysis of 10mm as per is 383-1970

Weight of sample taken = 5000grams

Sieve size (mm)	Weight retained grams	% Retained	Cumulative % retained	% Passing
12.5	0	0	0	100
10	272	5.44	5.44	94.56
4.75	3893	77.86	83.3	16.7
2.36	650	13	96.3	3.72

2.5 WATER:

Water is the key fixing in concrete, which when blended with cement, frames glue that ties the total and structures an aggregation known as 'Concrete'. Water utilized for blending and restoring will be spotless and free from harmful measures of oils, acids, soluble bases, salts, sugar, natural materials or different substances that might be malicious to cement or steel.

3. RESULTS AND DISCUSSIONS

we observed that compressive quality demonstrates a positive increment in compressive quality up to 8% SCBA and 12% surkhi in concrete. There happens a little reduction at 12% SCBA and 18% surkhi in concrete however is sensible. The expansion in compressive quality for sample 1 and sample 2 are 5.6% and 22.185% respectively after 28days of curing. The purposes behind increment in compressive quality for 8 substitution level is due to high silica content, fineness, formless stage, level of reactivity of bagasse remains and pozzolanic response between calcium

hydroxide and receptive silica in bagasse powder as announced by past works for conventional cement.

Table 03 COMPRESSIVE STRENGTH

Mix	**Compressive strength(N/mm^2) 7 days**	**Compressive strength(N/mm^2) --28 days**	**Avg.Compressive strength(N/mm^2)- 7 days**	**Avg.Compressive strength(N/mm^2) - 28 days**
NORMAL MIX	20.5 21.2 19.8	30.5 30.4 29.3	20.5	30.2
S1 (4% SCBA & 6% SURKHI)	22.4 20.9 20.6	32.6 32.8 30.3	21.3	31.9
S2 (8% SCBA & 12 % SURKHI)	24.6 25.4 24.1	37.9 35.2 37.7	24.7	36.9

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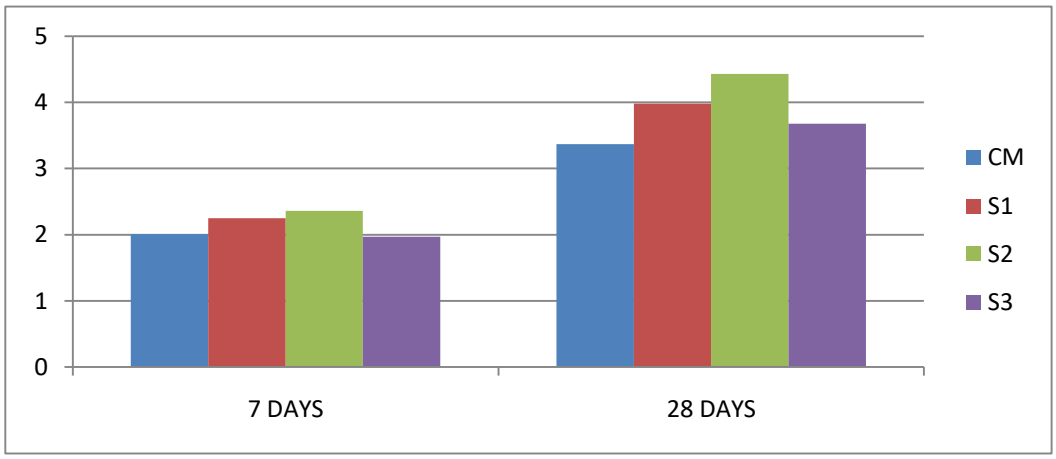
FLEXURAL STRENGTH



4. CONCLUSION

This examination researched the impact of SCBA and SURKHI on the fresh parameters (Workability,), quality parameters (compressive, split tensile and flexural quality) .cement and Fine aggregates was mostly supplanted with SCBA and surkhi separately with substitution dimension of 4, 8 , 12% and 6%,12%,18% respectively. On the premise of results got from this trial examination, following ends can be drawn:

Fresh property test results demonstrate a dynamic reduction as the SCBA and SURKHI substitution level increments, anyway for sample 1 (4% SCBA and 6% SURKHI) hints at no decrement in slump value

REFERENCES:

[1] Alireza Joshaghani, Mohammad Amin Moeini, Evaluating the effects of sugar cane bagasse ash (SCBA) and nanosilica on the mechanical and durability properties of mortar, *Construction and Building Materials* 2017, 152, 818–831

[2] Aparajita Ranjan, VikasSrivastava and Rakesh Kumar “Effect of Fly Ash Replacement with Surkhi on Workability of Self-compacting Concrete” ISSN: 2278-5213Journal of Academia and Industrial Research (JAIR)Volume 4, Issue 1 June 2015

[3] Akram T, Memon S.A and Obaid H.(2009). "Production of low cost self compacting concrete using bagasse ash." *Construction and Building Materials 23 (2009) 703–712*.."

[4] Bibekkumar Kushwaha1, LijomPadu "The Study of Compressive Strength on Concrete by Using Surkhi"*IJRASET* ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887 Volume 5 Issue XI November 2017

[5] Cordeiro, G. C., Toledo Filho, R. D., Tavares, L. M., & Fairbairn, E. M. R. (2008). Pozzolanic activity and filler effect of sugar cane bagasse ash in Portland cement and lime mortars. *Cement and Concrete Composites*, 30(5), 410–418.

[6] Daniel Dobiasa , PetrPokorny "Influence of Partial Replacement of Hydraulic Binder by Ground Brick on the Characteristics of Composites" Procedia Engineering 190 (2017) 568 – 574