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### REVIEW OF UTILIZATION SUGAR INDUSTRY WASTE IN CONCRETE FOR SUITABLE DEVELOPMENT

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**Abstract**-To study the effect on the properties of the concrete in hardened state by incorporation of Sugarcane Bagasse Ash (SCBA) such as, Compressive Strength, Split Tensile Test, and Water Absorption Test etc. sugarcane bagasse ash is optimum percentage (10%,20%,30%....) of cement and also sand replacement. The Scope of this study is to use Sugarcane Bagasse Ash in Concrete by replacing it with cement by 10%, 20%, 30% ...and also replacing it with sand by 10%, 20%, 30%... and to check various properties of fresh, hardened concrete & mortar and also to estimate the cost for each proportion per cubic meter on 7 and 28 days and check out to minimum percentage of SCBA in use in high strength of concrete.

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**Keywords**-sugarcane bagasse ash, concrete, compressive strength, water absorption test, split tensile test.

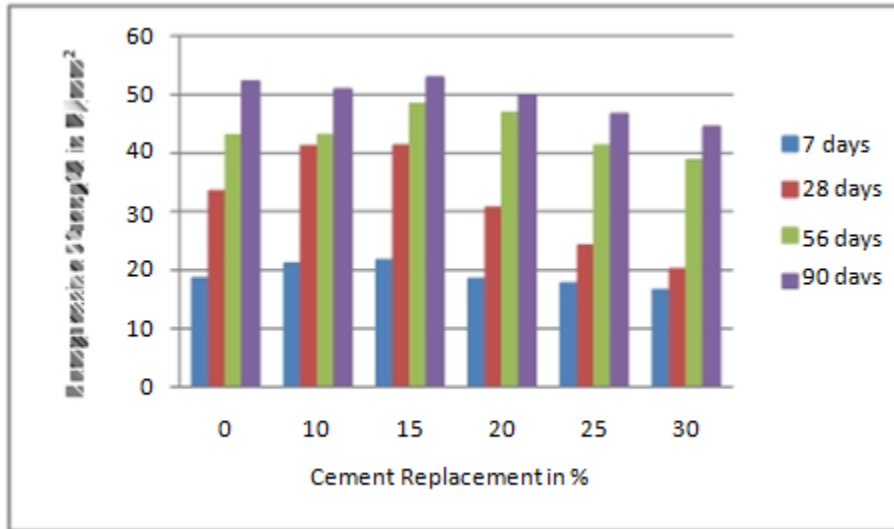
#### I. INTRODUCTION

Ordinary Portland cement is recognized as a major construction material throughout the world. Cement which is key ingredient of concrete which plays a great role, but it is the most expensive and environmentally unfriendly material. Researchers all over the world today are focusing on the ways of utilizing either industrial or agricultural waste, as a source of raw material for cement industry. This waste, utilization would not only be economical, but may also result in environmental pollution control measures. Industrial wastes such as sugarcane Bagasse Ash (SCBA), Rice husk Ash (RHA), Pulverized Fuel Ash, Waste lime, are being used as supplementary cement replacement materials. Recently Sugarcane Bagasse Ash (SCBA) has been tested in some parts of the world and also in India for its pozzolanic property and has been found to improve quality and reduce the cost of construction materials such as mortar, concrete paver blocks, concrete roof tiles and soil cement interlocking block. Sugarcane is one of the major crops grown in over 110 countries and its total production is over 1500 million tones. After the extraction of all economical sugar from sugarcane, about 40-45% fibrous residues (food & Agricultural Organization, 2006) is obtained.

#### II. LITERATURE REVIEWS-

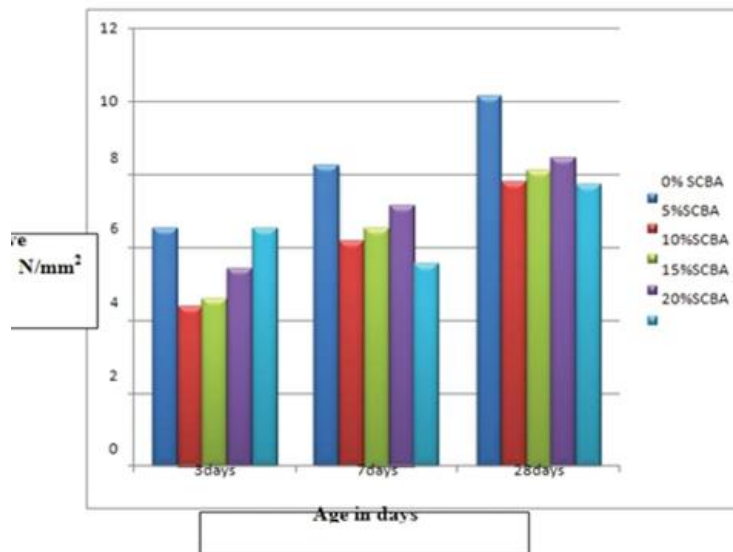
1. Mr U.R kawade in Associate Professor, Department of Civil Engineering, P.D.V.V.P, College Of Engineering, Ahmednagar, Maharashtra on "Effect of use of bagasse ash on strength of concrete" on 2013.

In this paper SCBA for 0, 10, 15, 20, 25 and 30% replacement by only cement and various properties of strength of concrete to 7 day, 28 day, 56 day and 90 days. In this paper to use of material M53 grade cement, fine aggregate, coarse aggregate and the result such as And results are it is found that the cement could be advantageously replaced with SCBA up to maximum limit of 15%. Although, the optimal level of SCBA content was achieved with 15.0% replacement.



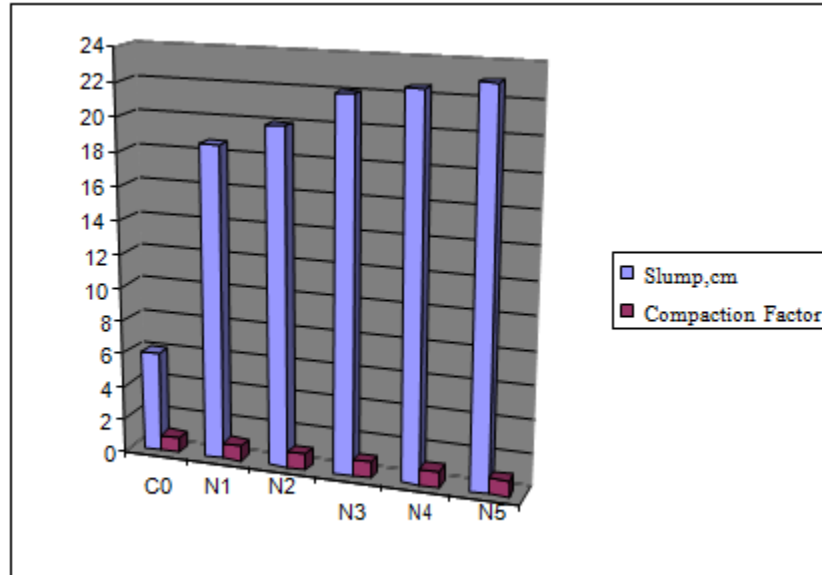
**2. Dr B.G Nareshkumar principle and professor of Maharashtra institute of technology Mysore Karnataka , India on “An Experimental Study on Bagasse ash as Replacement for Cement in Lightweight Concrete “**

To this paper to study of investigate experimentally the fresh and hardened properties of lightweight concrete using sugarcane bagasse ash replacement by cement by weight of 0%,5%,10% and 20% and expanded polystyrene beads as 100% replacement for coarse aggregate respectively.in this paper to use of materials M53 grade cement ,bagasse ash,water,EPS beads etc. and result such as



**3. R.srinivasan Senior Lecturer, Department of Civil Engineering Tamilnadu College of Engineering Karumatham Patti, Coimbatore-641659, India “Experimental Study on Bagasse Ash in Concrete “on 2010.**

In this paper SCBA is 0%,5%,15% and 25% replace by cement and check out various properties like compression test and slump test 28 days and material uses in OPC,FA,CA and SCBA in 0,5,10 and 25 percentages. It was shown that the use of 2.0% SCBA decreases the compressive strength to a value which is near to the control concrete



| Sample Designation | % of SCBA | Compressive Strength (MPa) | Split Tensile Strength at (MPa) | Flexural Strength (MPa) | Modulus of Elasticity (MPa) | Bulk Density (kg/m <sup>3</sup> ) |
|--------------------|-----------|----------------------------|---------------------------------|-------------------------|-----------------------------|-----------------------------------|
| C0                 | 0         | 13.80                      | 0.693                           | 3.63                    | 22800                       | 2535.30                           |
| N1                 | 5         | 15.83                      | 0.97                            | 3.35                    | 23100                       | 2541.23                           |
| N2                 | 10        | 12.33                      | 0.90                            | 3.19                    | 23000                       | 2517.52                           |
| N3                 | 15        | 8.79                       | 0.70                            | 3.04                    | 21900                       | 2494.81                           |
| N4                 | 20        | 8.30                       | 0.65                            | 2.75                    | 20100                       | 2400.01                           |
| N5                 | 25        | 7.55                       | 0.42                            | 2.30                    | 19800                       | 2396.04                           |

### III. CONCLUSION

In first paper to SCBA is replacing by 0%,10%,15%,20% ,25% ,30% of cement only and compressive strength of concrete in 7 day,28 day,56day and 90 days and resulted by 15% SCBA is to max strength of concrete.

In second paper to SCBA in 0%, 5%,10% and 20% replacing by cement and 3days,7days and 28days to check out to strength of concrete And also resulted by 15% min strength of concrete.The 15% of replacement of bagasse ash gives maximum compressive strength at 28 days as compared to 5%, 10% and 20% replacement of SCBA and this 15% replacement of SCBA with cement strength isslightly less than OPC based lightweight concrete which is comparable.

In third paper to SCBA replace by cement to 0%,5%,10% and 25% and in case show to 2%SCBA decreases the compressive strength to a value which is near to the control concreteThe results show that the SCBA in blended concrete had significantly higher compressive strength, tensile strength, and flexural strength compare to that of the concrete without SCBA.It is found that the cement could be advantageously replaced with SCBA up to maximum limit of 10%. Although, the optimal level of SCBA

content was achieved with 1.0% replacement. Partial replacement of cement by SCBA increases workability of fresh concrete; therefore use of super plasticizer is not substantial.

#### **REFERENCE**

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