

# A Comparative Study on Different Concretes Prepared by Partial Replacement of Cement by using Different Types of Ashes

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**Abstract** - In India and world the construction of structures has growing very fast and the use of cement and concrete has gone fast. The production of cement and also the concrete has making many environmental problems and that are seriously affect over environment. Now days the reduction of this pollution is very important, so more alteration and modification methods are applied in concrete manufacturing and most of using one that the replacing of cement in concrete by fully or partially. Here is done a comparative study about different types of concretes prepare by partially replacing of cement by using varies material ashes. Mainly here is studying about the strength variations of different ash blended cement concretes prepared by this way. Some studies say that the ash blended concretes has to improve the strength of concrete at some percentages of replacements in cement.

**Key Words:** RHA: Rice Husk Ash, BLA: Bamboo Leaf Ash, CSA: Coconut Shell Ash

## 1. INTRODUCTION

The commonly used ashes for cement replacing in concrete are rice husk, coconut shell and bamboo leaf etc. They are commonly cost effective and better to make more cost effective on low cost structure. In this paper goes through the strength studies of different ash blended concrete and comparison of this concretes strength. The compressive strength is very important factor of concrete strength. Here M20 mix has taken as sample mix. The compressive strength of concrete prepared by ash blended cement and their optimum compressive strength and corresponding replacement percentages has taken and compare the result of each other.

## 2. EXPERIMENTAL RESULTS

### 2.1 Rice husk ash blended cement concrete

In this concrete RHA is used as partially replaced material of cement in cement concrete. The advantages of this has help to reduce the environmental impacts to forming the dumping of rice husk ash directly in paddy field and this has reduce the waste of land in form of rice husk dumping area. The experiments has says that this concrete has shows better result in compression and this has most effective in comparison of compressive strength and cost studies.

**Table -1:** Result

Serial no:	% of r h a of optimum	Compressive strength in n/mm <sup>2</sup> of 28 <sup>th</sup> day M20 Concrete
1	30	31.20

### 2.2 Coconut shell ash blended concrete

Coconut shell is commonly available natural material. And the disposal of this has made heavy environmental problems in now days. This has made more environmental problems and health problems. This has not expired at a least time in natural disposal. The expiration of this has taken most time. But the dried shell has to be burn easily and this has get as ash form for replacing of cement in concrete. This has shows better results in compressive strength.

**Table -2:** Result

Serial no:	% of C S A of optimum	Compressive strength in n/mm <sup>2</sup> of 28 <sup>th</sup> day M20 Concrete
1	10	31.78

### 2.3 Bamboo leaf ash blended cement concrete

The bamboo leaf is a commonly available material in nature and this has not to be easily destroyed. This has form as a heavy waste on the surface. But the bamboo leaf ash is a good siliceous material and use full for the partial replacing of cement. This material blended concrete has commonly well in compressive strength.

**Table -3:** Result

Serial no:	% of B L A of optimum	Compressive strength in n/mm <sup>2</sup> of 28 <sup>th</sup> day M20 Concrete
1	15	23.24

## 3. RESULT ANALYSIS

Serial no:	Ash	% of ash replacing to get optimum strength	Compressive strength in n/mm <sup>2</sup> of 28 <sup>th</sup> day of M20 Concrete
1	BLA	15	23.24
2	CSA	10	31.78
3	RHA	30	31.20

- B L A is not good for replacing of cement in concrete to consider the strength along with cost.
- In case of strength the coconut shell ash is more better to particle replacing of cement in concrete
- In case of cost the bamboo leaf ash is better for particle replacing of cement in concrete
- Better to consider rice husk ash as a particle replacer of cement in concrete. That is better in strength and cost reduction of concrete.
- After this optimum level of replacing the strength of concrete has decrease.
- In the comparison of strength along with cost the RHA replacing has better.

#### 4. CONCLUSION

From this study to be concluded that above three ashes has better for replacing of cement in concrete. More better to considering strength along with cost the replacing of RHA is good to compare other two ashes. The B L A is not good for replacing to consider cost along with strength.

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