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AN EXPERIMENTAL STUDY OF PARTIALLY REPLACEMENT OF COW DUNG POWDER FOR CEMENT

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Abstract - *In our research project the result on the study for the use Cow Dung Powder (CDP) is partially replacement for cement in the concrete. Normally Cow Dung Powder (CDP) is required much more water content. So it is replaced only 50%. Now a days, the modern construction materials and technologies were well developed. In spite of quality of materials and availability of materials is less and also economically very high. So in this scenario in our project, we have to choose an economically low as it is possible materials like Cow Dung Powder (CDP). These materials are used partially by cement. Specialty of my project is Self-Curing Concrete. Cow Dung Powder (CDP) has normally collect the more amount of water when we mixing the concrete. After finishing the casting process, the water will slowly reacts with the concrete.*

Cow dung, which has germicidal property, was used in ancient days to clean living premises in South India. Nowadays, people are using commercially available synthetic cow dung powder. It is locally known as "Saani Powder" in Tamilnadu.it is freely available in homes and is sometimes accidently consumed by children.

Key Words: Cow Dung Ash, Lime Powder, Self Curing Concrete, Alumina

1. INTRODUCTION

Cow dung was habitually used in concrete and so one may suppose there were particular benefits in its inclusion. Recent publications suggest that dung may improve workability and durability or may act as an additional binder.

Knowledge has also been lost as to whether fresh, old or weathered dung was used. Since there is no historic reference to the dung being old or weathered, it is conceivable that this is a recent invention resulting from modern attitudes toward odour and hygiene. In any case, dried and fresh dung differ mainly in the water content and so are likely to affect only the amount of water, if any, added during mixing of the concrete. Normally, the cow dung as health friend, water PH balances, oxygen generator, good fighter against bacteria, germs and protected the UV rays.

2. MATERIAL PROPERTIES AND TESTS:

In our study we have to partially replacement Cow Dung Powder (CDP) for cement.

2.1. Material Properties:

2.1.1. Cow Dung Powder:

Cow Dung Powder (CDA) is normally available in farm regions. It is a byproduct of cow. The chemical properties of cow dung Powder have rich in nitrogen, potassium and calcium. It has relatively high carbon to the Nitrogen ratio. Cow dung Powder has normally added upto 50%.

2.1.2. Cement

Cement is a binder, substances used for constructions that sets hardens and adheres to other materials, binding them together. Cement is a seldom used on its own, but rather to bind sand and gravel (aggregate) together. Cement is used with fine aggregate to produce mortar for masonry, or with sand and gravel aggregates to produce concrete.

Fig 1 Cement

2.2. Laboratory tests:

Specific gravity test
Workability test
Compression cube test

2.2.1. Specific Gravity test:

2.2.1.1. Cement

Specific gravity value of cement is 2.56

2.2.1.2. Cow dung ash

Fig 2 Cow dung ash

Cow dung ash has normally light weight. It requires more amount to put in this trial. The average specific gravity value of cow dung ash is 2.166.

2.2.2. Workability test:

Fig 3

2.2.2.1 Cow dung Ash:

Fig 4 Cow dung Ash

It is in true slump

Water content	Slump value in "mm"	Type of slump
0.43	225	True

2.2.2.2. Cement:

It is in Shear

Water content	Slump value in "mm"	Type of slump
0.35	110	Shear

2.2.3. Compression cube test:

Compression test for 7 days curing

S.No	% of CDP	% of Cement	Load in KN	Compression strength (Mpa)
1	50	50	355	15.77

Compression test for 14 days curing

S.No	% of CDP	% of Cement	Load in KN	Compression strength (Mpa)
1	50	50	487	21.72

Compression test for 28 days curing

S.No	% of CDP	% of cement	Load in KN	Compression strength (Mpa)
1	50	50	533	31.03

Fig 5

3. CONCLUSION

The cow dung Powder (CDP) only material can resist 50% of diseases in our household. Economical wise, we can possible to reduce the material cost. The availability of material is normally high. We also remember our traditional construction materials.

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