EXPERIMENTAL ASSESSMENT OF JUTE YARN AND STONE QUARRY DUST ON CONCRETE

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ABSTRACT

In the present world, many types of research are going on in the field of construction. As concrete is one of the important construction materials, many researches are going on in concrete. There are many different types of researches going around the world. The nature of the concrete is such that the concrete is good in compression and weak in tension. In this research, a study is done on increasing the tensile strength of concrete to counteract the tension coming on a concrete member. To achieve an increased tensile strength of concrete jute yarn is added in the concrete mix with length 20mm, as jute yarn possess good tensile properties. As the production of jute yarn is very abundant in countries like India and Bangladesh. And to increase the compressive strength of concrete, stone quarry dust is added in concrete as a replacement of fine aggregate in the percentages as 10%, 20%, 30%, and 40%. The optimum percentage of stone quarry dust is taken, where it shows the maximum strength, and also the optimum percentage of jute yarn is taken. Taking the optimum dosages of both the elements concrete cubes, beams, and cylinders are casted. Later all the tests of the concrete species are done such as compression test, split tensile test, and flexural test. The casting of cubes, beams, and cylinders was done by different percentages of stone quarry dust. After castings with different percentages of stone quarry dust the optimum percentage of stone quarry dust is obtained. The optimum dosage of jute yarn was also obtained similarly. After obtaining the optimum percentage of both the materials the cubes, beams, and cylinders were casted by adding both the materials in the concrete mix. Then the final results were obtained. The addition of stone quarry dust and jute yarn showed a good impact on the strength characteristics of concrete.

KEYWORDS: Jute Yarn, Stone Quarry Dust, Compressive Strength, Split Tensile Strength, Flexural Strength

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