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Research

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# A Study on the Structural Effects of Bagasse Sugar Cane Stem in Structural Concrete Mixture in Sulfate and Chloride Environments

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## ABSTRACT

Due to the high volume of agricultural waste, the use of some of them in the manufacture of concrete reduces the production residues and the problems caused by their lack of recycling. Bagasse is a pulp produced after sugar cane extraction. The sugar cane factories produce about 1.2 million tons of excess bagasse annually due to the lack of conversion industries. In today's modern world, due to advances made in various scientific fields, the concrete industry has also evolved. The production of concrete containing pozzolan bagasse is also the result of the same improvements; concrete. In this study, for the production of synthetic pozzolan sugarcane bagasse, according to studies bagasse was burned for 30 minutes at a controlled temperature of 4 ° C. Then, by replacing 1, 2, 3, 2, and 2% of bagasse ash instead of cement in concrete, compressive strength, electrical strength, chloride penetration were evaluated by RCMT, water pressure, and sulfate resistance. The results showed an increase in compressive strength of the specimens up to 5% of cement replacement at different ages and a higher percentage of compressive strength loss was observed in the control specimen, but the electrical resistance at different ages increased by up to two-fold in the control specimen and also decreased. Before this, attention was drawn to the amount of water and chloride ion penetration. Sulfate resistance also increased by up to 5% replacement, but the highest sulfate resistance was observed in the sample by 5% replacement.

**Keywords:** Sugar Cane, Pozzolan Bagasse, Sulfate Environment, Chloride Environment

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## 1. INTRODUCTION

In Iran and in some countries the major use of agricultural wastes, one as livestock feed and the other as fuel used in factories such as brick-and-mortar factories and so on, is due to its affordability and ease of access. Material. In many cases, it is even seen that farmers are burning these seemingly extra materials. This results in both environmental pollution and rainfalls, causing acidification of agricultural water and soil, and consequently reducing crop yields. But in recent years, with the rapid development of human beings in the field of technical and administrative issues in the field of construction and with research in the field of building materials and the use of natural materials and the reinforcement and refinement of synthetic building materials, new and very useful innovations and initiatives

have taken place [1]. Is. One of the best approaches is to burn and burn off the waste products of crops such as rice husk and rice stalks (annual production of 6 ton per year), Sorghum husk or Chinese cane, wheat leaf pod, maize leaf blade, leaf And the herbaceous stalk, the Breadfruit that grows mostly in the tropics of Asia, the bagasse, the leaf and the sunflower stalk, the inner part of the Bamboo plant in high-water access areas such as the sea And lakes, rivers and marshes, etc. and eventually the replacement of ash from the burning of the above materials, albeit about thirty to forty percent, b Cement used in concrete production and thus increase the cement production and reduce its price. On the other hand, the cement price fluctuation, which has been increasing in most cases, at various times, always controls many problems for the proper and timely execution of the