Oral Presentation

Exploring the potential use of biomedical waste as an eco-friendly solution in concrete composites

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ABSTRACT

Single-use saline bottles are now a common practice in hospitals, testing facilities, and emergency rooms. After usage, they are landfilled, which has an adverse effect on the environment and living organisms. The purpose of this study is to determine whether it is feasible to reduce the amount of garbage that ends up in landfills by employing saline plastic bottles made from hospital waste in concrete. To produce composite concrete, shredded saline bottles were mixed with river sand and sandy soil in ratios of 1:1, 1:2, and 1:4. Through a series of experiments and FESEM analysis, the impacts of different ratios of shredded saline bottles on the mechanical properties of the concrete were examined. The hospital waste-based composite is found to perform better in flexure, tension, and compression. Its strength is unaffected by exposure to such unfavorable conditions because water absorption and acid breakdown are negligible. The composite's reduced thermal deterioration makes it a perfect material for thermal insulation in tropical regions. It is anticipated that this research will establish a new sustainable method for using hospital plastic waste to replace cement-based building materials in the future, thereby supporting a negative carbon cycle.

Keywords: Human health, Hospital, BMW.

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