

Keywords: Wood Ash, Sugarcane Bagasse Ash, Rounded Steel Fiber, Compressive Strength.

ACCLIMATIZATION OF PHARMACEUTICAL WASTEWATER WITH SECONDARY SEWAGE SLUDGE

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During the process of manufacturing the antibiotics, the wastewater is generated. It releases the toxic organic compound in the environment. The present study aimed to mix various ratios of pharmaceutical wastewater and Secondary sewage sludge for biological degradation. The ratios of pharmaceutical wastewater: and secondary sewage sludge for present study are: 1:1, 1:2, 1:3, 1.5:2.5, 2:1 and 3:1. The batch mode operation is carried for a period of 90 days. Conclusion is drawn based on the COD concentration. Among the entire six ratios considered for acclimatization of pharmaceutical wastewater and 1:3 ratio gives the best result.

Keywords— Acclimatization, Batch mode, Pharmaceutical wastewater, Secondary sewage sludge

AN THEORETICAL STUDY ON ALTERNATE BRICK MATERIAL-A REVIEW

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Bricks have been playing a significant role in building and construction for thousands of years. Despite the reliable workability and accessibility, it is widely known that the production of fired clay brick has always been a rather energy- and resource-intensive process. Many researchers have been conducting a wide range of studies regarding sustainable and innovative bricks, to mitigate the large carbon footprint of brick industry. To better understand the development and current context of sustainable and innovative bricks during the past several decades, this paper provides an up-to-date review on the recent studies of bricks, categorising these publications according to the materials used and methods employed for the production of innovative bricks. This review found that firing is still the most common method to produce bricks, while this process involves enormous energy consumption and carbon footprint. Considering that cement and lime- based calcium-silicate-hydrate bricks are also not sustainable, Geopolymerisation is a preferable way to produce bricks, but corresponding cost and benefit analyses need to be conducted for relevant research. In addition, this paper suggests that clay-based geopolymer bricks could be one of the focuses of future brick-related research, and the key challenge is to improve the reactivity of clay at a low cost.

Keywords: *Alternative bricks, Alternative material, Alternative process, Sustainable development*