

**TREATMENT OF LIVESTOCK FARM
WASTE WATER USING LOWCOST FILTRATION SYSTEM**



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ABSTRACT

One of the biggest environmental problems that needs to be solved is the treatment of wastewater from livestock, which may be done economically and effectively. The aim of the study is to determine how well a low-cost filtration device works to increase the quality of wastewater from livestock farm. A variety of easily obtained materials are used in the filtering system, including sand, brick pieces, activated carbon, coconut husk fiber, stone chips, and charcoal. These materials were chosen because to their affordability and filtering capabilities. Through a comparison of the quality of water treated by the filter and untreated animal effluent, the research aims to evaluate the effectiveness of this filtration instrument.

Various parameters were measured, including pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Dissolved Oxygen (DO), turbidity, and Total Suspended Solids (TSS) of wastewater before and after treatment. The initial untreated livestock wastewater exhibited a pH of 7.56, EC of 2.16 mS/cm, TDS of 1462.40 mg/L, DO of 0.24 mg/L, turbidity of 442.20 NTU, and TSS of 0.02 mg/L. After passing through the 1st filter configuration (Filter 01), the pH increased to 8.34, EC decreased to 0.44 mS/cm, TDS dropped to 276.40 mg/L, DO increased to 4.27 mg/L, turbidity reduced to 20.23 NTU, and TSS slightly increased to 0.03 mg/L. The 2nd filter configuration (Filter 02) yielded a pH of 7.52, EC of 0.32 mS/cm, TDS of 188.40 mg/L, DO of 3.39 mg/L, turbidity of 26.33 NTU, and TSS of 0.02 mg/L.

Statistical study verified that these modifications were statistically significant ($P < 0.05$), suggesting that the filtration system is successful in increasing the quality of the wastewater. EC, TDS, turbidity, and DO were all significantly increased by both filters, with Filter 02 performing somewhat better in terms of TDS reduction. The results of this study show that the quality of livestock wastewater can be greatly build up by a low-cost filtration system made of stone chips, coconut husk fiber, activated carbon, resin, brick fragments, charcoal, and sand. According to the results, treating livestock wastewater with such filter system may be a practical and long-term option, particularly in environments with limited resources.

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