

DOMESTIC WASTE WATER TREATMENT USING COCONUT COIR AND SUGARCANE BAGASSE AS FILTER MEDIA

Project Reference No.:46S_BE_1473

College : Sahyadri College of Engineering & Management, Mangalore - 575007

Branch : Civil Engineering

Guide(s) : Prof. Hemantha Prabhu B

Student(s): Ms. Pratima Prakash Naik

Mr. Shravan K Suvarna

Mr. A Manoj Kumar

Mr. Umarul Farooq

Keywords:

BOD, Alkalinity

Introduction:

- Water is one of the most important substance on earth. All plants and animals must have water to survive. Without water life is not possible on earth. It is most important that the water which people drink and use for other purpose is clean water.
- The water must be free of germs and chemical. In order to develop a healthy and hygienic environment, water quality should be monitored such that it lies within the respective standards.
- Wastewater is discharged by domestic residences, commercial properties, industry, which often contains some contaminants.
- Wastewater obtained from various sources need to be treated very effectively in order to create a hygienic environment. If proper arrangements for collection, treatment and disposal of all the waste produce from city or town are not made, they will go on accumulating and create a foul condition.
- The interest of the community of the town or city it is most essential to collect, treat and dispose of all the wastewater of the city in such a way that it may not cause harm to the people residing in the town.
- The extent and the type of treatment required depends on the character and quality of both sewage and sources of disposal available.
- Reduction of strength of domestic wastewater using two different bed materials Coconut fiber and sugarcane bagasse fiber as a filter media is the type of treatment we adopted.

- The treatment process consists of high void space media that is submerged in wastewater. This method of treatment adopted using coconut fiber and sugarcane bagasse as a filter media follows the principle of trickling filter.
- The biological actions involved in the organic compounds present in wastewater get decomposed resulting in reduction of strength of wastewater.

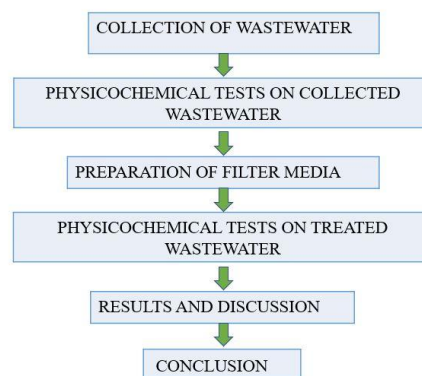
Objectives:

To study the performance of the Coconut coir and Sugarcane bagasse fibers as filter media for domestic wastewater treatment at different contact periods

Methodology:

- Domestic wastewater treatment using coconut coir and sugarcane bagasse as filter media.
- Collection of raw waste water from college treatment plant.
- Initial tests on collected waste water sample like BOD, chlorides, sulphates, nitrates, alkalinity, acidity, pH, total solids, fixed solids and volatile solids.
- Preparation of filter media using coconut coir and sugarcane bagasse fiber.
- Tests are carried out on treated waste water like BOD, chlorides, sulphates, nitrates, alkalinity, acidity, pH, total solids, fixed solids and volatile solids.

Methodology



Results and Conclusions:

The experimental study on domestic wastewater treatment using coconut coir and sugarcane bagasse as filter media showed promising results. The effluent quality obtained after treatment was found to be within the permissible limits of the Central Pollution Control Board (CPCB). The study found that the combination of coconut coir and sugarcane bagasse as filter media is an effective and efficient method for treating domestic wastewater.

In conclusion, the use of coconut coir and sugarcane bagasse as filter media for domestic wastewater treatment is a cost-effective and eco-friendly alternative to conventional wastewater treatment methods. The study shows that this method can remove contaminants from wastewater and produce effluent that meets the CPCB standards. This approach can be used for small-scale wastewater treatment in rural and urban areas, as well as in industries that generate high volumes of wastewater. Overall, this study contributes to the ongoing efforts to develop sustainable and efficient wastewater treatment technologies.

Scope for future work:

The use of coconut coir and sugarcane bagasse as filter media is a cost-effective and eco-friendly solution for domestic wastewater treatment. The project opens up possibilities for further research and development in this area. One possible scope for future work could be to test the effectiveness of the filter media on a larger scale, such as in a community setting. Additionally, the project could be expanded to include the use of other waste materials as filter media, which could provide even more cost-effective and sustainable solutions for domestic wastewater treatment. Furthermore, the project can be combined with other advanced treatment methods to improve the efficiency of the treatment process. Overall, the project provides a solid foundation for further research and development in the field of domestic wastewater treatment.