

Grey Water Management using Low Cost Adsorbent

**Prof. Kumbhar A. N.¹, Mr. Saurabh Sanjay Patil², Mr. Krishnaraj Chandrkant Desai³,
Mr. Dhananjay Suresh Nanavare⁴, Mr. Digvijay Nandakumar Patil⁵**

Professor, Department of Civil Engineering¹

Student, Department of Civil Engineering^{2,3,4,5}

Shree Santkrupa Institute of Engineering and Technology, Ghogaon, Karad, India

Abstract: *In order to develop a healthy and hygienic environment, water quality should be maintained within the respective standards. Source of Wastewater is obtained from combination of the domestic, industrial, commercial, agricultural activities. Wastewater obtained from various sources need to be treated very effectively in order to maintain a hygienic environment. In addition to this, disease causing bacteria will grow up in the stagnant water and the health of the public will be in danger. The principal aim of wastewater treatment is generally to allow human and industrial effluents to be disposed off without danger to human health and natural environment. The treatment of waste water depends on the character and quality of sewage and sources of disposal availability.*

Keywords: Greywater, Reuse, Natural media, Treatment systems, User perception

I. INTRODUCTION

Ramesh¹, J. S. Sudarsan (2016) et.al

Have studied “The production of drinking water from most raw water sources involve coagulant usage at a coagulation stage to remove turbidity in the form of suspended and colloidal particles

The efficiency of the extracts of MoringaOleifera, Okra, CalotropisProcera, and Cassia Auriculata made them used as natural coagulants for the clarification of water Turbidity (NTU).

Islamuddin, Imran Ahmad (2016) et.al

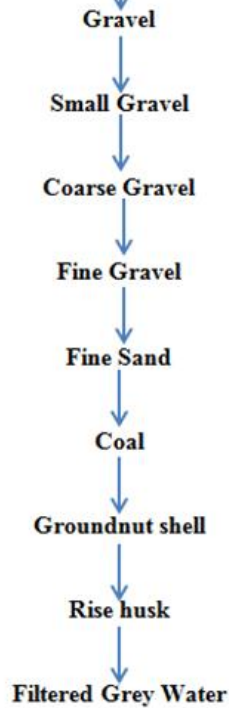
Have studied “the scarcity of clean water, treated wastewater potentially provides an alternative source for irrigation, flushing, gardening. The domestic wastewater is characterized in terms of its physical, chemical and biological composition. The composition changes depending on the location of the source, seasonal variation, climate, time of day, water consumption and population. Composition refers to the actual amounts of physical, chemical and biological constituents present in wastewater.

II METHODOLOGY

2.1 Flow Chart

Grey Water (Kitchen sink, Washing Machine, Shower Tub)

Filter layers Coarse to fine more porous to less porous



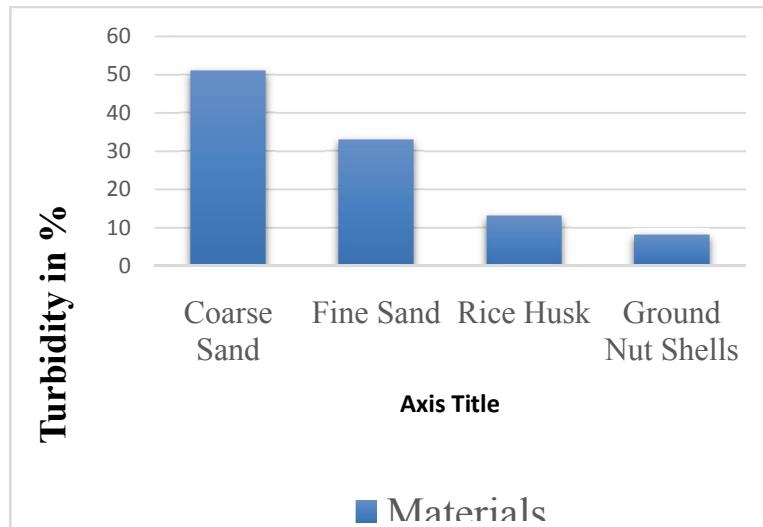
Primary test
Test Grey water

TABLE I : Grey Water Test

Parameters	Grey Water	Fresh Water
pH	7.9	7.2
Alkalinity (mg/l as CaCO_3)	305	187
Suspended solids (mg/l)	242.6	0.0
Hardness (mg/l as CaCO_3)	400	396
TDS (mg/l)	741	392
Chloride (mg/l)	92	86
Sulphate (mg/l)	14.8	12
B.O.D (mg/l)	19	1
C.O.D (mg/l)	79	0
Total Coliform (no of coliforms/ 100ml sample)	20	0

III. RESULT AFTER PASSING LAYERS

Original concentration	133
After Passing Through Coarse Sand	51
After Passing Through Fine sand	33
After Passing Through Activated rice Husk	13
After Passing Through Grinded Ground nut shells	08
After Passing Through All filter Media	10



IV. CONCLUSION

This study showed us that, according to the results obtained in this study, the rice husk should be treated before using it as because it contains a lot of impurities and release colour pigment once being crushed to smaller forms. However untreated rice husk gave better result for different contact time which showed the high possibility to be used in adsorption process by modifying the rice husk to obtain optimum efficiency. Application of rice husk is beneficial in many areas by reducing cost of adsorption process and also in the biomass waste treatment.

The gravity filter and Grinded Groundnut shell filter can remove turbidity to a greater extent .Ground nut shells are also a very effective media in the filtration of turbid water. Coarse sand and Fine Sand also highly effective for removal of turbidity also it requires small land of area for filtration process.

REFERENCES

[1]. S Liu, JYL Forrest - 2010 - books.google.com - Advances in grey systems research

- [2]. A. D. Mande, B. R. Kavathekar, A. S. Langade, N. G. Lasankute, S. H. Patle,(2018), “Low Cost Household Water Treatment Systems: A Review”, International Journal of Engineering Research & Technology (IJERT), ISSN: 2278- 0181,Vol. 7 Issue 03.
- [3]. IndranilGuin, Susheel Kumar Gupta,(2017) “Low Cost Methods of treatment of water for domestic purposes in Rural Areas”, International Journal for Scientific Research & Development, ISSN:2321-0613, Vol. 4, Issue 12.
- [4]. S.Gautam, S.Ahmed, A. Dhingra, Z. Fatima, (2017), “Cost- Effective Treatment Technology for Small Size Sewage Treatment Plants in India, Journal of Scientific & Industrial Research, vol.76, pp.249-254.
- [5]. ElZein Z, Abdou. A, Abd EL Gawad. I. (2016), “Constructed wetlands as a sustainable waste water treatment method in communities” (2016)pp, ISSN:605-617 ELSEVIER.
- [6]. KarnapaAjit. (2016) “A Review on Grey Water Treatment and Reuse”, International Research Journal of Engineeringand Technology (IRJET) vol:03 Issue:05, may2016.
- [7]. Sameer S Shastri (2014) “Zero Waste Disposal System for Multi-Storied Building.
- [8]. NargesshAmabadi, HasanBakhtiari, NafiseKochakian, MahamoodFarahani, (2015) “The investigation and designing of an onsite greywater treatment system at Hazrat-e-Masoumeh University”, Qom, (IRAN) ISSN: 1337- 1346.
- [9]. SandhyaPushkar Singh, Nusrat Ali, Sabih Ahmad, Dr. J.K. Singh, Manoj Kumar,(2015), “A Study on Grey Water Treatment Processes: A Review”, International Journal for Scientific Research & Development, ISSN (online): 2321- 0613,Vol. 3, Issue 08.
- [10]. Prof. K.D. Bhuyar, Mr.Amit. R. Lohakare, Mr.TejasPatil, Mr.YogeshGhode, Ms.SofiyaSayyad, (2015), “Treatment of Water by Membrane BIO Reactor”, International Journal for Scientific Research & Development, ISSN: 2321-0613, Vol. 2,Issue 12.