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TREATMENT OF EFFLUENTS FROM JEANS FACTORY

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Abstract - *In parallel to developing technology there is worst effect on natural environment. It includes pollution of air, noise, but major is "water pollution". Water pollution such as polluting lakes, rivers, ponds etc. Now a days, rivers are getting highly polluted in Mumbai due to industrial waste. Among those rivers most polluted is "Ulhās River". The Ulhās River is 75% getting polluted due to "jeans waste water" which is directly release in to the Ulhās River which is necessary to monitor and control the pollution in real life.*

The urban sewer systems and the wastewater treatment plants have detrimental impacts on the receiving river water quality. Today, the identification and classification of waste water are in accordance with existing municipal regulations. The ecological quality of a receiving river can be effectively protected by regulating the operation of the wastewater treatment plants and the wastewater effluent from the sewage networks to the river according to the environmental and weather conditions.

Key Words: **Pollution, Jeans Effluent, Sewage, River Ulhas.**

1. INTRODUCTION

The rapid population growth, land development along river basin, urbanization and industrialization has subjected the rivers to increase stress, giving rise to water pollution and environmental deterioration. Most of the rivers in urban areas are end point of effluents discharged from the industries.

The Ulhas River flow abutting the Northern tip. The river flows across the jurisdiction of Ulhasnagar Municipal Corporation. There are various Nallahs flowing within the Ulhasnagar, which divides Ulhasnagar into various camps. The important ones viz Waldhuni Nallah and Khemani Nallah. With the presence of rivers, Nallahs are available for drainage, the Industries flourished in the area. Almost 500 factories of jeans are placed there, jeans factories release the discharge of untreated effluents into the drinking water source directly which is harmful and polluting the river badly.

2. LITERATURE REVIEW

Nadim Reza Khandaker, Sarker, Iffat Afren performed 3 tests for the treatment of water which are chemical oxygen demand, total suspended solids, Primary settling test but among all those test author found that primary settling test is most effective for the removal of the colour from waste water. [1]

Esra Billur Balcioglus and Sevgi Gunes Durak tried to treat the waste water with chemical $Fecl_3$ is not more effective, but when the waste effluent treated with $AL_2(SO_4)_3$ it was more effective. And again it was treated with $FeCl_3$ with polymer which is also more effective.[2]

Rathinamoorthy. R., Senthilkumar. P explained that the pollution assessment was performed in various parts denim processing textile waste water in three steps. In the first step the waste water samples were collected from the denim processing industry. The pollution load was analysed in terms of COD, pH, Conductivity, TDS as per standards. Higher organic content in the Mercerizer effluents was identified which is due to acidic nature of Neutralizing agents. As a second step, ANOVA and correlation coefficient analysis were performed to identify the significant differences, correlation between the properties of effluents respectively. In the final step the reductions in pollution load were achieved by applying suitable pollution prevention strategies.[3]

3. METHODOLOGY

Following procedure was adopted:

1) Screening: Screening is a very first operation carried out at treatment plant, and consist of passing the effluent water through the screen, so as to trap the floating material. The floating material if not removed will choke up the pipes and pumps.

Medium type of fixed screens are used having area of 0.021 m^2.for cleaning purpose the mechanical operated rakes are provided.

2) Lime Mix: After the water passes through the screening the water come in the lime mix chamber and in it we add about 5000 l of lime in a day so as it controls the pH of water and phosphorous.

3) Equilisation Tank: In this tank the air diffusers are provided at the bottom to obtain the uniformity in the water characteristics. Due to air, the suppressing odour generation is avoided. In this tank balancing is done during fluctuations of flow. The tank is kept open for ventilation

4) Flash Mixer: After the equalization tank the effluent passes to the flash mixer in which the dose of 5 to 6 liter/hr of polyallum is provided with the help of knob and lime is added to the effluent and it is allowed to mix it properly with the help of blades at bottom. The rotation of the blades is fast.

5) Tube Settler: Water comes from the flash mixer to the tube settler to increase the detention time. It has very small diameter tubes having high wetted perimeter relative to wetted area, providing laminar flow conditions and low surface loadings rate, has shown good promises. Such tube settling devices is called as tube settlers, have been found to provided excellent clarification with detention times of equal to or less than 10 minutes.

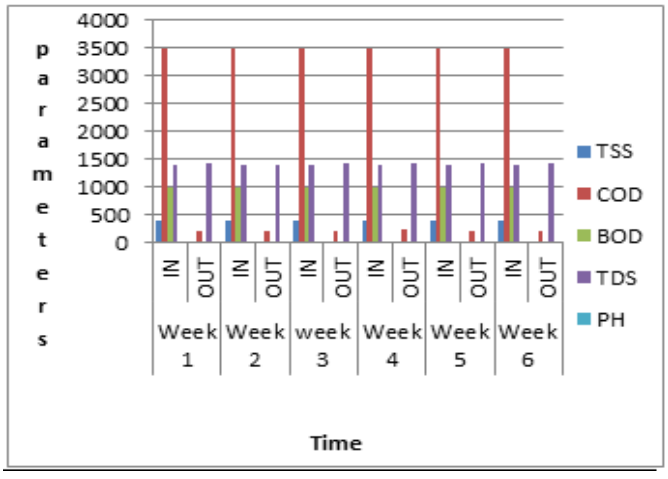
6) Sequential Batch Reactors: From tube settler the effluent passes to sequential batch reactor which contains enzymes. And for their further growth air is provided by blower, the enzymes and microbes kills and reduces micro-organism, COD and BOD.

7) Carbon Filter: Carbon filter is a strategy for separating that uses a bed of enacted carbon to evacuate contaminants and debasements, utilizing synthetic adsorption. Every molecule/granule of carbon gives a vast surface zone/pore structure, permitting contaminants the most extreme conceivable presentation to the dynamic destinations inside the channel media.

8) Sand Filter: In weight sand channel effluents streams down wards through the channel quaint little in the suspended issue which has for the most part been dealt with by expansion of a coagulant like alum-is held on the sand surface and between the sand grains promptly beneath the surface. There is unfaltering ascent in the loss of head as the filtration procedure proceeds and the stream decreases once the weight drop over the channel is exorbitant.

4. RESULTS

After the procedure, following results were obtained:



3. CONCLUSION

Thus the above methodology has been successful in reduction of COD, BOD, TDS, TSS, and pH to the standard range of MCPB from the jean waste effluent. The treated effluent can be used for cleaning, washing, bathing, expect drinking.

4. REFERENCES

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