

Effect of Wastewater Odour on Environment and its Prevention

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Abstract– In the modern period of industrial age the consumption of water is drastically increased, so does the generation of waste water. Wastewater to a large extent is responsible for the degradation of environment. Discharge of wastewater to a fresh water body is polluting the environment which could be fatal for the aquatic life along with humans. Stagnation of wastewater produces unpleasant odour in it. The main cause of this nuisance odour in water is presence of H₂S gas. The unpleasant smell of could be prevented at initial stages. This could be done chemically and biologically. Chemically by mixing bauxite and biologically by introducing bacterial to wastewater could be used to prevent the unpleasant smell. In Jaipur the main odour producing source is AMANISHAH NALA.

Key words: Environment, sewerage water, physical properties

I. INTRODUCTION

We human beings are blessed with the environment in which life can sustain but unfortunately we are destroying and polluting this wonderful gift of nature and human beings are primary source for the degeneration of environment as we all know that water is one of the main component of environment. But anthropogenic activities are polluting the water at large scale. People are wasting this precious gift of nature recklessly to an extent where existence of mankind could be in danger. To an extent the generation of wastewater could be prevented in our house hold. The wastewater of house hold could be used in watering the garden cleaning the vehicles etc. This could further be used in water harvesting which ultimately increases the ground water table. In the same way wastewater could be used in industries and commercial zones.

In present time odour of wastewater is one of the major problem for all the world. Odor is very unpleasant which become intolerable to the human beings. Human being identifies the odour by physiological and psychological response of nervous system[1]. It pollutes the surrounding environment. The odour of wastewater is harmful for human beings.

The main component of odour of wastewater is H₂S which on respiration mixes with hemoglobin of blood and deprived the person from oxygen. Which could be harm full for the person. This unpleasant odour of wastewater could be prevented in its initial stages of disposing the wastewater into any other water body. This can be done either chemically or biologically. In chemically process, when bauxite (calcium nitrate) is mix in wastewater than it element the Sulphur particles and it resist the formation of H₂S gas[2]. In biologically process the introducing bacteria is feed to Sulphur reagents.

Mostly all kind of industries are situated in the Jaipur, which discharge their wastage into AMANISHAH NALA and these discharged wastage are producing the odour. Effect of odour of wastewater on environment and the causeof generation of odour in wastewater Wastewater qualities analysis.

II. STUDY AREA

The study area selected is the AMANISHAH NALA for our research work because wastewater of all types in Jaipur discharge into it. The collected samples are from Bambala Pullia located at (26.793009N, 75.827338E) with an altitude of 427m above mean sea level. Study area map and indication of proper location



Figure 1. Map of Study Area (Google Earth)

III. METHODOLOGY

The wastewater comprises of both chemical and biological actions. In wastewater, generation of odour is mainly due to H₂S gas and this have a bed smell as that of rotten egg.

Chemical reaction for generation of H₂S

WATER + CARBONIC MATTER+ SULPHATE

→ ODOUR

There are many other compounds present in waste water along with H₂S due to these also producing odours in wastewater.

Some of them are-

TABLE I. CHEMICAL PROPERTIES

Name of Compound	Chemical formula	Type of order
Ammonia	NH ₃	Sharp,pungent
Methylamine	CH ₃ NH ₂	Putrid,fishy
Mercapto	-CH ₂ -SH	Strong unpleasent
Acid	-COOH	Vinegar smell

There are some following conditions that affect the generation of odour

- Concentration of organic materials.
- Nutrients
- Temperature
- Dissolved oxygen

The formation of H₂S is generally support to production of other organic compounds like as marcapto compounds. Which also generating the same other odour in wasrtewater. As we can solve the formation of H₂S similarly we can solve formation of other compound which generate the odour.

Chemical Agents used for treatment at primary stage of waste water-Calcium nitrate (bioxide), Iron salt ferrous chloride. Potassium permanganate, Sodium hypochlorite. Chlorine, Hydrogen peroxide[3]. We use same kind of filters to prevent formation of odour ant they are Carbon scrubbers. Bio filters. Bio trickling filter. To prevent the environment from odour of wastewater provide a continuous flowing path for wastewater with low flowing velocity[4]

IV. SAMPLE COLLECTION

From our site-Bambala pullia Pratap Nagar,near to Narayana multispeciality hospital,Jaipur. We took four point naming A, B,C,D. than we collected sample from these points. Then mix all those "sample to make one sample and from that sample we analyse our resulting data.

V. TEST AND OBSERVATION

We have performed these tests under rules and regulation of IS: 3025 code provision. Test for determination of Dissolved Oxygen. (This test is performed according to guideline of IS:3025 PART 38). Test for determination of Biochemical Oxygen Demand. (This test is performed according to guideline of IS: 3025 PART 44) Test for

determination of Chemical Oxygen Demand (This test is performed according to guideline of IS: 3025 PART 58)

Test for determination of Total Solid

(This test is performed according to guideline of IS: 3025 PART 15). Test for determination of Total Suspended Solid

(This test is performed according to guideline of IS:3025 PART 16&17)

VI. RESULT

TABLE II. ANALYSIS OF WASTE WATER

S.NO.	TEST NAME	RESULT
1	DO	6.8 mg/l
2	BOD	123 mg/l
3	COD	844 mg/l
4	TS	639 mg/l
5	TSS	567 mg/l

The above table shows available oxygen in waste water sample which was collected from our site. The values indicate the respective values of the different components in the sample collected.

VII. CONCLUSION

The less wastewater produced the less will be odour so ultimately reduce the producing of wastewater at starting stages as :Domestic level- Wastewater from house is reuse in gardening, planting, and other works.At Industries level-Again and again reuse wastewater in industries upto a possible level.The best way to reducing odour is element at the initial stages with using suitable chemical agents and bio-organism. Result of the waste water samples' value of Dissolved oxygen,Biochemical Oxygen Demand and Chemical oxygen demand.

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