

Analysis and concentration of Organic Micropollutant in wastewater

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Abstract— Nowadays large number of people using personal care products and Pharamauticals for personal life It is necessary to see disposal of these content because at the end this produces the pollutants which are micropollutants. Micropollutants are mainly coming from pesticides and Pharamauticals. They are not completely biodegradable. They are present in wastewater in very low concentration, so it becomes difficult to identify and remove completely from wastewater. For the complete removal of micropollutants from wastewater more advanced treatment is required.

Keywords—Pharmauticals, Micropollutant, Personal care products (PCP).

I. INTRODUCTION

Micropollutants include substances such as *pharmauticals*, personal care products, hormones, expired medicines and industrial chemicals. Micropollutants found in wastewater treatment plant influents, hospitals, wastewater from Pharamauticals, industrial wastewater and ground water. Pharmaceutics are used at increasing rate and end up in wastewater through excretion and disposal. Micropollutants do not constitute an immediate health hazard, the long term effects of these permanently present micropollutants are becoming sensitive to aquatic environment, at low concentrations.

II. MICROPOLLUTANT

As many micropollutants are present in all forms like liquid, air and solid but there is need of new technologies for complete removal of micropollutants. As from study Benzene occurred in all forms as very harmful in all forms. Benzene is a volatile organic compound which is occurring in wastewater in huge amount. Benzene is occurred at leakages from landfills and hazardous waste sites in air, water and soil. It is not soluble in water. They are used in the production of many daily products such as plastics and rubbers . Natural sources of benzene are emission of volcanoes, forest fires and cigarette smoke. As after the conventional treatment plant some concentration of benzene still remains in the water which is very harmful to humans and animals. Benzene has very dangerous health effects like irritation in stomach,

dizziness, sleepiness, decrease in red blood cells, bleeding, harmful to pregnant women, chance of infection, harmful to reproductive system and animal birth rate decrease. Due to excess dose of Benzene can cause leukaemia and memory loss. Other forms of benzene are having 55% of benzene in ethyl benzene, 24% of benzene in cumene, 12% of benzene in cyclohexane, 5% of benzene in nitrobenzene. As cumene forms phenol and acetone in which phenol is toxic. It may cause skin burns, liver damage, irregular heartbeat, digestive difficulties, and headaches. They are also toxic for aquatic animals. There are many treatments available for benzene removal. In Physical treatment adsorption by granular activated carbon, air stripping and reverse osmosis. In Chemical treatment Ozonation and Photo catalytic oxidation and in Biological there is biodegradation for the removal of Benzene. Benzene is a aromatic hydrocarbon, colourless liquid, volatile, sweet odour and flammable.

III.SOURCES OF MICROPOLLUTANT

TABLE I-SOURCES OF MICROPOLLUTANTS

Sr. No.	Micropollutant	
	Sector	Substance
1	Personal care products	Disinfectants, Conservation agents, Fragrances, Soaps, UV sunscreen, cosmetics.
2	Pharmauticals	Agents used on blood , blood forming organs, heart, circulatory diseases, Antibiotics, asthma, Analgesics, Allergy, Anti dispersants, Anticonvulsant, Estrogens, beta blockers, alpha blockers, steroid, lipid lowering drugs, calcium channel blocker.
3	Pesticides	Herbicide, Fungicide, Insecticides
4	Industrial agents	Petro industry, Flame retardants, Anticorrosive agents, Solving agents, Paints, Production of resin,

		Detergents, Ten side, complexion agent, Preservative. Production of plastic.
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humans. So it becomes necessary to find out an advanced treatment like ozonation, powdered activated carbon for the complete removal of micropollutants.

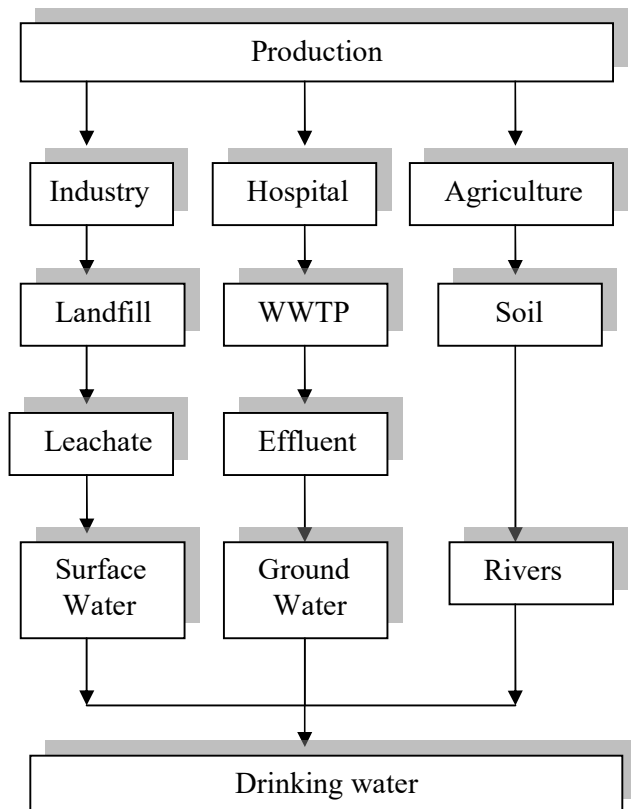


Fig. 1-Sources of contamination

As there are many methods for determination of concentration of Benzene such as UV Spectrophotometer, Gas chromatography and Liquid chromatography. Prevention techniques are using ozonation, powdered activated carbon, reverse osmosis and biodegradation using aerobic or anaerobic process. As compared all methods powdered activated carbon method is most economical and easy to apply for removal of micropollutants.

IV CONCLUSION

The current study aimed to provide link between micropollutants mainly due to Pharamauticals and environmental water with possible adverse effects. New innovations need to concentrate on micropollutants in wastewater to reduce negative impacts on aquatic life and

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