International Journal of Education and Science Research Review
P-ISSN 2349-1817, E- ISSN 2348-6457
www.ijesrr.org December- 2017, Volume-4, Issue-6 Email- editor@ijesrr.org

INDIVIDUALITY AND DISPOSAL PROBLEM OF INDUSTRIAL EFFLUENTS

ABHA SHARMA
Research Scholar
OPJS University
Rajasthan

DR. NARENDRA KUMAR
Supervisor
OPJS University
Rajasthan

ABSTRACT
Water pollution due to discharge of untreated industrial effluents into water bodies is a major problem in the global context. The problem of water pollution is being experienced by both developing and developed countries. Human activities give rise to water pollution by introducing various categories of substances or waste into a water body. The more common types of polluting substances include pathogenic organisms, oxygen demanding organic substances, plant nutrients that stimulate algal blooms, inorganic and organic toxic substances.

KEY WORDS: Pollution, oxygen.

INTRODUCTION
The problem of pollution is perhaps as old as the birth of the first man on the earth, but it took long before it could be realized. Bhaskaran (1947) and Archeivala (1969) indicated excessive water pollution as a cause of water scarcity and its interference with other legitimate uses. The problem of waste disposal in its acute form in which it exists today began in nineteenth century with the advent of industrial revolution and the phenomenal population growth. The waste disposal problem however, evokes little interest from the mill owners because of additional costs involved in treatment of waste. But they failed to understand the fact that attempt made in the right direction can lead to the recovery of products, which are now being wasted and effluents may be used for irrigation purpose after treatment or using appropriate dilution. They are also not fully aware of the damage to natural environment and other natural losses due to non disposal of the waste.

Pollution is an international problem and has caused concern all over the world. Pollution of water has only been discussed here in the concerned work. Water is the elixir of life without which no organism can sustain life. Four fifth of the earth is covered with water, most of it i.e. 97.2 percent is the ocean and 2.8 percent is the fresh water. Out of 2.8 percent fresh water, 2.2 percent is the ground water and 0.6 percent is the below ground water. Out of the ground water, 2.15 percent lies frozen in glaciers and soil polar ice caps, 0.04 percent is in the atmosphere, soil and vegetation while only 0.01 percent in the streams and lakes. Thus we have hardly .01 percent of the total water resources in the universe at our disposal. It is up to us whether to use it judiciously or to misuse it.

LITERATURE REVIEW
Environmental pollution is one of the major problems of the world and it is increasing day by day due to urbanization and industrialization. Over the last few decades large scale usage of chemicals in various human activities has grown very fast, particularly in a country like India which has to go for rapid industrialization in order to sustain over growing large problem of population (Mustafa et al., 2010).

The current pattern of industrial activity alters the natural flow of materials and introduces novel chemicals into the environment. The released organic compounds and heavy metals are one of the key factors that exert negative influences on man and environment causing toxicity to plants and other forms of biotics and abiotics that are continually exposed to potentially toxic heavy metals (Chandra et al., 2010).

Of the various sources of pollutants industrial effluents containing heavy metals pose a threat to the ecosystem. These metals are present in the waste water of different industries such as metal cleaning, plating

baths, refineries, mining, electroplating, paper and pulp, paint, textile and tanneries (Mistry et al., 2010). Water used in these industries creates a waste that has potential hazards for our environment because of the introduction of various contaminants such as heavy metals into soil and water resources (Prabavathy and De, 2010). Presence of pollutants in effluent is a common environmental hazard since the toxic metal ions dissolved can ultimately reach the top of the food chain and becomes a risk factor for human beings (Devi and Sasikala, 2010).

Ground water is of major importance for potable water supply and also serves for the agricultural irrigation and industrial production. Ground water resources are experiencing an increasing threat of pollution coming from urbanization, industrial development, agricultural activities and mining enterprises (Hema et al., 2010). The global water pollution due to the increase in number of industries is a serious problem faced by the modern world (Ganesh and Baskaran, 2009). Release of the effluents in the receiving water is the major reason for water pollution. These pollutants find their way to aquatic ecosystem such as rivers and ponds and lakes which pose a risk to the health of human and ecosystem (Rehman and Anjum, 2010).

RESULT

Different effluents showed inhibitory effects on seed germination. Reduction in seed germination percentage was observed as 7.29, 14.5 and 20.83 percent in cultivar Swarna treated with 50, 75 and 100 percent distillery + sugar effluents. Reduction in seed germination percentage was noticed as 24.26 percent in cultivar Pusa bold as 32.96 percent in Varuna and as 34.40 percent in Kranti at 100 percent concentration of distillery + sugar effluent, whereas in organic effluent, germination with 5.62 and 22.91 percent reduction was observed in 10 and 100 percent effluent concentration respectively, in Swarna. 27.90, 35.40 and 41.40 percent reduction was observed in cultivar Pusa bold, Varuna and Kranti at 100 per cent concentration. Lowest (10%) concentration of distillery + sugar effluent had little or no effect on seed germination, though this concentration increased the growth.

TABLE 1

Bio-accumulation of heavy metals (ppm) in different parts of *Brassica juncea* cv. Swarna treated with different concentration of organic industry effluent.

Attribute	Effluent concentration (%)				
	0	10	50	75	100
Cadmium	0.94	2.64	7.91	8.22	8.91
Arsenic	–	3.14	5.02	5.52	6.11
Nickel	0.55	4.11	5.16	5.81	6.02
Manganese	14.84	15.14	16.28	17.02	18.12
Zinc	22.11	22.68	29.12	31.56	32.81
Mercury	2.21	2.39	4.18	5.82	6.17
Lead	2.25	2.91	3.17	4.89	5.09

PLANT PART – LEAF

Attribute	Effluent concentration (%)				
	0	10	50	75	100
Cadmium	0.87	4.17	6.21	6.81	7.62
Arsenic	–	5.12	5.93	6.23	6.58
Nickel	0.51	2.87	3.62	4.02	4.21
Manganese	19.51	20.18	24.17	25.11	26.84
Zinc	28.30	29.21	33.28	34.20	35.11
Mercury	1.62	1.87	2.91	3.20	3.59
Lead	1.08	2.17	3.82	3.97	4.24

PLANT PART – EAR

Attribute	Effluent concentration (%)				
	0	**10**	**50**	**75**	**100**
Cadmium	0.83	3.82	4.17	4.62	4.91
Arsenic	–	2.10	3.87	4.11	4.54
Nickel	0.63	2.67	3.54	3.98	4.31
Manganese	7.54	9.62	11.52	11.97	12.81
Zinc	21.32	23.10	25.28	26.28	27.11
Mercury	0.92	1.12	2.09	2.62	2.91
Lead	1.06	1.71	3.11	3.54	3.87

DISCUSSION

Reduction in seed germination may be due to that effluent contains certain heavy metals which affect protein metabolism also by enhancing the mobilization of reserve protein and accumulation of structural and catalytic proteins in germinating seeds. In this respect the present findings coincide with the studies of Valsyuk et al. (1970) and Gupta (1991) showing that heavy metals cause inhibition of nucleic acid and protein synthesis.

The observations of promotion of seed germination at 10 percent concentration of distillery + sugar effluent may be due to presence of adequate amount of mineral nutrients in the effluent which probably enhanced the seed germination by promoting germination enzymes acting as their cofactors or else. In this regard present results support the studies of Manoharan and Lakshmanan (1988).

CONCLUSIONS

The present work clearly establishes the hazardous nature of the micro- and macro-elements and heavy metals in the distillery + sugar and organic industry effluent, when given in higher levels. Control of micro- and macro-nutrients and heavy metals not only difficult but also non-economical. However, one can check it at the industrial source of nutrient and heavy metals flow.

REFERENCES

1. Boralkar, D.B., R.K. Trivedy, S.G. Pathak, A.M. Deshmukh and M.A. Patil (1982). Studies on soil pollution along the Krishna river in ths state of Maharashtra. J. Environ. Bull. 3 (3) : 13.
2. Chakarbarty, R.N. and S.J. Archeivala (1971). Disposal from fertilizer factories. Indian J. Environ. Hlth. 13 (1) : 1.
3. Dunlop, S.C., R.M. Twedt and Wen, Lan-Lan Wang (1961) Studies on the use of sewage effluent for irrigation of truck crop. J. Milk and Food Technol. 24 (2) : 44.
4. Irvine, D.E.G. and B. Knight (1976). Pollution and the use of chemicals in agriculture. Public Hlth. 7 : 207.
5. Limaye, R.G. (1976). Utilization of industrial waste. Chem. Ind. Dev. 77 : 22.
6. Mitkees, A.I., M.H. Selim, E.L. Sharaf, E.L. Tahami and M.A.A. Abaseri (1972). Effect of soil salinity on flax crop. Agri. Res. 50 (2) : 43.
7. Patric, R. (1953). Aquatic organism as an aid to solving as waste disposal problem. J. Sew. Ind. Waste 25 : 210.
8. Pillae, K.S. (1976). Utilization of waste for fertilizer industry at F.A.C.T. Chemical Age of India. 27 (12) : 1034.
9. Sharma, L.N. and C.K. Kale (1968). Effect of sewage and its dilution on growth of jowar at different stages. Indian J. Environ. Hlth. 10 : 120.
10. Soam, S.K., Geeta Joshi and P.K. Agarwal, (1993), Iron porphyrin enzymes and growth of heavy metal treated seedling of Vigna mungo L. Hepper, J. Nat. Cons. 5 : 81.