EFFECTS OF INDUSTRIAL EFFLUENTS FROM M.I.D.C. NANDED ON GODAVARI RIVER WATER

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Key words : MIDC effluents, Impact of COD, Godawari Pollution.

Abstract :

The present investigation deals with the study of Godavari river pollution due to impact of MIDC effluents increses COD content of water. The water is greatly used for domestic, agricultural & recreational purposes. The investigations were carried out for the period of two years during Feb.-2017 to Jan.-2019

Chemical Oxygen Demand is the oxygen required by the organic substances in water systems to oxidizes them by a strong oxidizing agent. It is an index of organic content of water. Chemical oxygen demand test can be used in finding out the toxic conditions and biologically resistant substances. It is also found to be reliable and useful indicator to relate organic matter content in the river water. COD is the measurement of total oxygen required to oxidize all biologically available and inert organic matter into carbon dioxide and water. B

Introduction :

Monitoring of biochemical parameter is a routine water quality assessment for river quality where pollution is of concern due to rapid urbanization and industrialization that can post threat to sustainability of river conservation. Thus BOD and COD are two widely used parameters for organic pollution measurements. COD is the oxygen required by the organic substances in water system to oxidizes them by a strong oxidizing agent. It is the test used for measurement of pollution strength of industrial and domestic waste. The pollution strength can be measured in terms of quantity of O_2 required for the oxidation of organic matter there by producing Co_2 & H_2O. All the organic compounds with some exception can be oxidize using strong oxidized agent under design of treatment plant because of its rapidity in determination COD text can be used in finding out the toxic conditions and presence of biologically resistant substances. It is a poor measure of organic matter as oxygen is also consumed in the oxidation of the inorganic matter.

The samples were collected from three sampling stations A, B & C monthly. On specific date of each & every month at fixed morning time to avoid interference of other factors. Samples were collected in clean polythene bottles by standard methods suggested by APHA (1989). The values of chemical oxygen demand were estimated by dichromate digestion method.

acidic conditions.

COD has advantage over BOD because COD determination requires about 5 hrs. as compared to BOD requires 5 days. COD is important in the management and

The three sampling station are station A is situated at water filtration tank 'Dankin' before entering Godavari in Nanded city. Station – B is situated near old bridge and Station – C is situated near Wadgaon where M.I.D.C. effluents are drained in River Godavari by nala without any treatment.

Results :

In the present investigation values of COD were recorded. The maximum COD values were recorded in summer and lowest during monsoon. The values of COD recorded during the year 2017-18 at station-A 24.4 to 130.6 mg/lit. and at station- B 48.2 to 235 mg/lit. and at station C 50.2 to 240 mg/lit. During the year 2018-2019 the values of COD recorded are at station A 25.9 to 132.6 mg/lit. at station – B 49.6 to 236 mg/lit. and at station – C are 51.8 to 242 mg/lit.

The values of COD are given in the table 1 & 2

Table No.1

Monthly Mean Values of C.O.D. (mg/1)

from Godavari River Water Samples

during the year 2017-2018

Month	Station-A	Station-B	Station-C
February	37.1	52.2	58.6
March	40.8	92.4	98.2

Table No.2

Monthly Mean Values of C.O.D. (mg/1)

from Godavari River Water Samples

during the year 2018-2019

Month	Station-A	Station-B	Station-C
February	39.2	55.1	61.0
March	41.9	93.6	99.8
April	40.8	102	145
May	132.6	236	242
June	43.4	100	104
July	25.9	51.9	57.4
August	27.5	49.6	51.8
September	32.4	52.4	69.8
October	34.0	61.6	62.6
November	35.4	65.2	70.8
December	34.2	76.1	83.5
January	32.6	86.1	90.6

Discussion :

During COD determination the organic matter is converted into CO_2 and H_2O. This test is useful to determine toxic conditions and the presence of biologically resistant substances. In present investigation the highest levels of COD during summer in the month of May and lowest during monsoon.

April	40.3	100	144
May	130.6	235	240
June	42.2	98	102
July	24.4	50.8	56.2
August	26.2	48.2	50.2
September	30.1	50.8	68.3
October	31.2	60.3	61.2
November	33.1	64.4	69.1
December	34.2	75.1	81.3
January	30.8	84.2	88.3

in Islapur Dam. Sharma et.al (2000) recorded the maximum COD values from Yamuna river at Mathura, where a river receive a huge quantity of sewage, animal waste and other substances. Singh et.al (1998) recorded. COD values from Rapit rive at Gorakhpur range from 7.1 to 8.5 mg/lit. Meenakshi Deshmukh et.al (1998) recorded COD values from Kham river water range from 23 to 40 mg/lit. Masarat Sultana et.al (1999) recorded COD values from Godavari river water range from 22 to 30 mg/lit.

The COD values of drinking water should not exceed more than 10 ppm as per guidelines of world health organisation (WHO). The values of COD for drinking water were recorded beyond the permissible level in both the years.

Conclusion :

In the present investigation the COD values are higher compared to standard values of WHO & I.C.M.R. which indicates greater pollution of Godvari river water due to M.I.D.C. effluents it rejects the utility of river water for potable use, recreational and history. Therefore if is necessary to discharge the M.I.D.C. effluents after proper treatment by authorities

It seems that temp and water table influences on COD. Not only temp but some of the fatty acids chloride, nitrates and iron are the main interfering radicals which influences the COD values. Similar trends were reported by Kudesia et al (1986), Qummerunnisa (1985).

The COD & BOD values are more during summer than monsoon and winter. The similar trend was observed by Kathari et.al (1981). Pulle J.S. (2000) recorded the COD values in the range between 60 to 148

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