

ISSN 2231-6671

International Registered and Recognized
Research Journal Related to Higher Education for all Subjects

Hi-TECH

RESEARCH ANALYSIS



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Effect of idol lord Ganesh immersion activity non Physico-Chemical properties of Tapi river water at Bhusawal, Dist: Jalgaon (MS)

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ABSTRACT

The impression of idol of lord Ganesh at Anant Chaturdashi is a major source of contamination and sedimentation to the Tapi river water. This utsav is carried out every year during Ganesh Chaturdashi to Anant Chaturdashi, after 10 days of worship. Thousands of these idols are immersed in different water bodies. The Ganesh Utsav is most celebrated festival in Maharashtra state involving various people from every strata of the society. This festival is the great cause of pollution. Obviously this pollution is the fatal for human being, agriculture and domestic purpose. Due to immersion of idol lord Ganesha in the Tapi river water, water can be regarded polluted when it changes its quality for the composition either naturally or as a result of above human activities, thus becoming less suitable for drinking, domestic, agriculture, industrial recreational wild life and other uses. Idol of lord Ganesha is made up of various materials such as clay but non biodegradable plaster of paris, thermacole, colours, synthetic cotton, paints containing heavy metals also used. The immersion particle leads to biodegradation of water

quality. The parameter like pH, Temperature, Turbidity, DO, BOD, COD, TSS, TDS, Total hardness, Calcium hardness and Magnesium hardness, oil and grease and higher on immersion idol have grow in number and rise over the year and urban water bodies and facing on increasing nutrient load.

Introduction:

Total area of fresh water in the world estimated 2.5 million sq.km. This comes to only 0.5 % of total earth surface. Yet fresh water in the most productive resource (3) Water supports life on earth and around which the entire fabric of life is woven. The requirement of water is in all lives, i.e. from microorganisms to man, is a serious problem today because of all water resources have been reached to a point of crisis due to unplanned urbanisation and industrialisation (11).

On the planet earth water is most important commodity which can be exploited than only other resources for the sustenance of the life on this planet. The unique property of water which makes it good solvent and a renewable source also makes it a substance which by virtue of the properties has got a much greater tendency to get polluted.

Bhusawal is situated in the Khandesh region of Jalgaon district of Maharashtra. It is the major railway junction station and nearby it the thermal power station 'Deepnagar' is situated. It lies on Deccan plateau in between 21^o, 01' North latitude and 75^o, 50' East longitude. Tapi River originates from Multai at Baitul district in Madhya Pradesh is one of the important west flowing river in India. This river covers approximately 724 Km distance in Madhya Pradesh, Maharashtra and Gujrat and merges Arabian sea near Surat.

Generally water pollution is a state of deviation from pure condition when by its normal functioning and properties are affected. Aggravated environmental problems often affect the misuse or misunderstanding of technology (9).

Material and method:

Water samples without any air bubbles were collected from the site of idol immersion at different inter values i.e. pre immersion, during immersion and post immersion in clean polythene plastic container pre immersion samples were collected a week before the immersion activity, during idol sample were collected during immersion activities. Post-immersion sample were collected 15 days after the completion of immersion activities.

Sampling was done from two sites of Tapi river SA- Engine Ghat and SB- Near Jhuga Devi.

As per the tradition the people of Bhusawal city idol of lord Ganesha is supposed to be immersed in three days, five days, seven days and maximum people believed in ten days on the auspicious occasion of Anant Chaturdashi the sample were subjected to physic chemical analysis within 24 hours accordance with standard method of APHA(1989). The instruments were used in the précised accuracy and chemical used were of analytical grade.

Table -1 : Physico-Chemical parameters of Tapi river at different sampling station

Sr. No.	Parameters	Units	Pre immersion		During immersion		Post immersion	
			SA	SB	SA	SB	SA	SB
1	pH		7.8	7.9	7.7	7.7	7.5	7.5
2	Temperature	^o C	24	24	22	22	21	21
3	Turbidity	FAU	75	80	141	144	85	90
4	DO	mg/l	4.4	4.6	5.4	5.6	4.5	4.5
5	BOD	mg/l	12	15	24	26	26	30
6	COD	mg/l	62	65	90	95	100	115
7	TDS	mg/l	800	820	950	1000	980	1000
8	TSS	mg/l	120	150	200	220	190	200
9	Ca Hardness	mg/l	310	316	430	440	425	427
10	Mg Hardness	mg/l	240	244	255	260	265	265
11	Total Hardness	mg/l	461	462	550	560	575	580
12	Oil and Grease	mg/l	00	00	0.01	0.012	0.022	0.023

Results and discussion:

The values of Physico-Chemical parameters of Tapi river water are presented in Table-1. The present study carried out the use of controlling measures undertaken against pollution by idol Lord Ganesh immersion. However high concentration of TSS and TDS and low value of DO still formed the chief pollutant affecting adversely on water quality.

The present study carried out the use of controlling measures undertaken against pollution by idol Lord Ganesha immersion. However high concentration of TDS and TSS and low concentration of DO. There were narrow ranges of fluctuation in pH value

of 7.5 to 7.9 minimum value was recorded in post immersion. Temperature ranged between 21 °C to 24 °C was minimum in post immersion. Turbidity was higher the period at the Station SB, it was found the 75 to 80 FAU in pre, while 141 to 144 FAU in during and 85 to 90 FAU in the post sample respectively for both the sampling station SA and SB. The water colour is disturbed completely during the idol immersion covering high turbidity.

Dissolved oxygen is a important to all the aquatic organism and is considered to be the factor that reflect the biological activity taking place in the water body and determines the biological changes. DO was noticed comparatively higher in during the sampling period at both sampling stations it was in the range of 4.4 to 4.6 mg/l in pre, while 5.4 to 5.6 mg/l in during and 4.5 mg/l in post immersion respectively. For the drinking water limit is 6 mg/l according to (15).

BOD was noticed comparatively higher in the during and post period at both sampling stations it was found in the range of 12 to 15 mg/l in pre, while 24 to 26 mg/l in during and 26 to 30 mg/l in post immersion respectively. According to (6) the higher value of BOD means presence of more biodegradable organic material. It was direct correlation with the increase in nutrient level of river water due to immersion activity (7).

COD was found in the range of 62 to 65 mg/l in pre, while 90 to 95 mg/l in during and 100 to 115 mg/l in post immersion respectively for both sampling stations. Water having COD value 0 to 5 mg/l for drinking while water within 20 to 100 mg/l COD value in unfit for drinking water (max limit).(ISI, 1991).

TDS was noticed in the range of 800 to 820 mg/l in pre, while 950 to 1000 mg/l in during and 980 to 1000 mg/l in post immersion respectively for both sampling stations. TSS was noticed in the range of 120 to 150 mg/l in pre, while 200 to 220 mg/l during and 190 to 200 mg/l in post immersion respectively for both sampling stations.

Calcium hardness was noticed in the range of 310 to 316 mg/l in pre, while 430 to 440 mg/l in during and 425 to 427 mg/l in post immersion respectively for both sampling stations.

Magnesium hardness was noticed in the range of 240 to 244 mg/l in pre, while 255 to 260 mg/l in during and 265 mg/l in post immersion respectively for both sampling stations.

Total hardness was noticed comparatively higher in the during and post period at both sampling stations it was found in the range of 461 to 462 mg/l in pre, while 550 to 560 mg/l in during and 575 to 580 mg/l in post immersion respectively. The hardness of water is not a pollution parameter but indicate water quality.

The water body is an urban eutrophic lake where the amount of nutrient is very high and oxygen depletion is very prominent after idol immersion (13). The total hardness was also reported higher in post idol immersion. The value of BOD, COD and oil and grease have shown an increase during and after idol immersion as same reported (5). (14) studied the effectiveness of aeration, units was selected for the lower lake in Bhopal. The idol are made up of plaster of Paris, clay and clothes supported by small iron rods and types of paints such as varnish and water colours and it is major source of contamination and sedimentation of the lakes of Bhopal (2). Phosphate is considered to be the most significant among the nutrients responsible for eutrophication of lake as it is the primary initiating faster. Phosphate enters the water body in domestic waste water, according for the condition of eutrophication. Due to that reduces oxygen concentration and some time the level of oxygen depletes so that it can lead to fish mortality also (12).

The present investigation on assessment of idol immersion on physic chemical parameter of Tapi River was revealed that idol immersion activity was negative effect on water quality of the river water.

Conclusion:

If mentioned above parameter is increased after the immersion of idol Lord Ganesha. Due to that there is no doubt about water pollution in the river. If this tradition would go on in near future, the negative effect of polluted water would harm the health of people. It is not possible with everyone to have RO water facilities so as per Government rule, Municipality collects Nirmalya i.e. wastage garlands and flowers as well as idol collection. It protects water from pollution. In this regard the worshipers should keep their superstition aside should whole hardly support for work of municipality. On the final day of Ganesha festival thousands of plastic idols are immersed in the water bodied by devotees, this increase the level of acidity. Therefore the solutions proposed by various groups are as follows:

1. Recycling the plastic idols to repaint them and use them again the following years.
2. Return to the traditional use of natural clay idols and immersed the idol in a bucket of water at home.
3. Use of a permanent idol of stone and brass, used every year and symbolic immersion only.
4. Ban on the immersion of plastic idols in lakes, rivers and sea.
5. Use of biodegradable materials such as Paper Mache to create Ganesh idols.
6. Encouraging people to immerse the idols in tanks of water rather than in natural water bodies.

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