



# Impact of Idol Immersion on the Physio-chemical Parameters of the Water quality of Ganesh Ghat water of Dombivli, Thane District, Maharashtra

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## Abstract

The Ganesh Ghat creek, situated on the bank of Ulhas River was studied and analyzed in order to understand the quality of water. Different physiochemical parameter were studied such as the pH, Conductivity, Acidity, Alkalinity, free CO<sub>2</sub>, DO, BOD, COD, Salinity, Chlorinity and Hardness of the water. The analysis of the sample water indicates that there is a pollution of the water due to the anthropogenic activities that are carried out over there. To prevent the deterioration of the Ghat water, some encouraging measures to be taken at the public and the government level. In the present study water sample was collected from the Ganesh Ghat in Dombivli from June 2021 to November 2021.

**Keywords:-**Physiochemical parameters, Ganesh Ghat, Ulhas river, Water quality parameters, Changes in water quality.

## Introduction

Water is most essential for the living life on the earth and we all are aware that there can be no life on earth without water. Humans prefer the pure water for the drinking purpose as it is an important and essential requirement of mankind; on the other hand the polluted water that is being produced by the release of untreated chemicals in the river, streams is a matter of concern for the entire organism. The most essential advantage of fresh or drinking water is that, it is related to the ecosystem and the health of the public (Japtap, 2013). Due to irresponsible and selfish behavior of the human being many of the toxic and untreated effluent and chemicals are being released in the river streams and other water reservoirs leading to the pollution of water and soil. As stated by the World Health Organization due to insufficient water supply, poor sanitation and unhygienic processes, most of the children suffer from different and various diseases and die each and every year.

Ulhas river that originates from the Sahyadri hills near Khandala, flows through the industrial areas of the cities like Badlapur, Ambernath, Ambivli, Ulhasnagar, Kalyan, Dombivli (Ganesh Ghat), etc. ultimately reaching to the Arabian Sea. The length of the river from its origin is noted to be around 122Km to its outfall in Arabian Sea. The river along with it carries huge amount of untreated waste water and contaminated industrial effluent released from industrial sector, that are situated in the cities, along with the heavy metals finally reaching to the Thane creek. The Ganesh Ghat is around 3Km away from the station of Dombivli and is located in the mota gaav of juni Dombivli.

To perform Idol immersion ceremony on the second, fifth and eleventh day of Ganapati festival, thousands of devotees of Lord Ganesha gather on the Ghat and also during the idol immersion of Goddess Durga during Navratis festival. At the time of idol immersion ceremony many of the things are thrown in the water body, that includes the puja materials such as decoration materials of the mandap, plastic sheets, polythene bags, plastic bottles, clothes, cosmetic materials, flowers, leaves, thermocols, metal polish and many more, which are highly polluting.

The Ghat is located on the bank of Ulhas River, used to transport the goods and people from Dombivli to Bhiwandi. Immersion of idols and Pitru Immersion had deteriorated the water quality of the Ghat. The Ghat is used by the people for morning and the evening walk, children used to play cricket and other sports nearby. Due to city sewage and untreated waste effluent that is released from the industries in to the river along with many religious activities had led to the pollution of water bodies, which had now become a menace to the ecosystem (Bajpai et al 2002; Varsani 2009).

According to Leland et al, 1981 while the immersion of the idols into the river, some of the floating materials are also released in the water, which results in eutrophication of the river. One of the most serious problems that are being faced by the world today is related to water pollution. From time to time and from place to place, the quality of water of particular area had never remained steady, which is largely being regulated by biotic and agencies that interconnect directly or indirectly (Raut et, 2013). To know the status of a particular water body area, regular monitoring of physiochemical parameters are essential. With regard to the occurrence and prosperity of species in that area, physiochemical characteristics are considered very much essential (Kiran B.R 2010). A systematic study of physiochemical parameters of the Ganesh Ghat water sample was conducted from the month June 2021 to November 2021 with the help of known standard methods (APHA, 2005).

### **Water sample collection**

Water sample was collected from the Ganesh Ghat that is located on the bank of Ulhas River for the months from June 2021 to November 2021. The samples were taken in cleaned and well rinsed 5 litre plastic canes directly from the resource and the samples were analyzed in the laboratory for the various physicochemical parameters.

## Results and Analysis

Sr. No	Parameter	Months					Reference Values as per IS 10500:2012
		August	September		October	November	
			Before Idol immersion	After Idol immersion			
1.	Colour	Light Green	Light Black	Light Black	Light Black	Light Green	
2	Transparency	Transparent	Transparent	Transparent	Transparent	Transparent	
3	Odour	odourless	Odourless	Little odour	Little Odour	Odourless	
4	pH	6.97	6.81	7.5	6.88	7.05	6.5-8.5
5	Conductivity $\mu\text{S/cm}$	270	319	239	244	260	200 – 800 $\mu\text{S/cm}$
6	Alkalinity mg/L	94	93	110	105	98	103
7	Acidity mg/L	88.5	87.1	94.3	92	90	
8	CO <sub>2</sub> mg/L	28	25	34	31	30	6
9	DO mg/L	8.4	9.2 mg/l	8 mg/l	8.3mg/l	8.5	6.5-8
10	BOD mg/L	16.09	21.32	28	27.	23	5
11	COD mg/L	80	85	135	132	120	8.5-11
12	Salinity mg/L	53.87	35.92	48	45	39	600
13	Chlorinity mg/L	29.82	19.88	26	22	18	250
14	Hardness mg/L	145	168	180	176	173	300

To control the solubility of nutrients in water, pH of a particular water plays an important role. The acidic pH (7.5) of the Ganesh ghat was observed after the immersion of idols in the water.

Due to microbial activity free CO<sub>2</sub> is released which is required for the process of photosynthesis and algal growth. Low CO<sub>2</sub> was observed before the immersion of idols (28mg/L and 25mg/L), whereas after immersion there was rise in CO<sub>2</sub> level in water (34mg/L and 31mg/L)

For the survival of aquatic organism, Dissolved oxygen play an important role. During the study period no major changes were observed in Dissolved oxygen, but the values of BOD and COD were very high. McCoy et al, 1986 stated that the high values of BOD can directly be related with the nutrient level increase in the water because of the activity of immersion of the idols. According to Rajkumar et al, (2003) to know the toxic components and existence of biologically resistant organic substance in water, the components like COD and BOD are important.

## Findings

1. The impact of idol immersions in the Ghat water was very much perceptible.
2. The organic pollution of the Ghat water predominantly increased the BOD, because of pooja ingredients and human influence during the post immersion of the idols of Ganesh chaturthi and durga pooja.
3. The water shows an increasing BOD level which does not meet the desired water quality criteria, but it had not affected the Dissolved oxygen level in the Ghat water. If the water is having BOD more than 6mg/l, it is considered as polluted water.
4. The aquatic ecosystem is being affected by the polluted water

## Recommendations

1. After immersion of the idols in the Ganesh ghat water, there should be a conventional method to be taken for the collection of the flowers and pooja ingredients.
2. Idols that are to be immersed in the ghat water should not be made of Plaster of Paris.
3. It is recommended that the authorities to conduct awareness programme related to the environment importance especially before the festival, so as to educate the public of city to make them aware about the hazards that are related to the environment due to the immersion of the idols in the natural water body.
4. Due to immersion of the idols in the Ganesh Ghat water there is an increase in the concentration of the some parameters which is resulting in the deterioration of the water body.



## Conclusion

The Ghat water is not suitable for human use. The main reason behind the deterioration of water quality of Ganesh Ghat water is various religious activities like Ganesh idol immersion, Goddess Durga Immersion, Pitra Immersion and untreated chemical effluents from the industries. During the immersion of idols many of the chemicals and paints are released in the water, which deteriorate the water quality. Awareness related to the water pollution can be created among the people as we can't stop the religious activities that are going on every year near the Ganesh Ghat water, which is located in the dombivli city of Maharashtra, India.

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