

Monitoring of water quality of river Yamuna in the city of Taj

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ABSTRACT

In any aquatic system hydrobiology depends on coliform and fecal coliform as they are inversely proportional to B.O.D., C.O.D. as well as D.O. These oxygen demands influence the life of Rotifers when coliform and fecal coliform increased due to decreasing of Rotifers and toxic contents of water also increases in Yamuna river. The fresh water fishes of Yamuna at Agra especially *Catla catla* are rapidly going to decrease from upstream to downstream site. In fact all these conditions imbalancing hydro-biological conditions of Yamuna river. Industrial effluents as well as Agra city waste water direct transfer to Yamuna without any treatment is foun responsible for such hazardous condition in this study.

Keywords: *Fecal coliform, Rotifers, Effluents, Catla catla.*

INTRODUCTION

In fresh water eco-system physical and chemical condition are responsible for habitat of fresh water fishes but their abiotic components play main role for micro-organisms like Rotifers because they act as food for herbivorous fishes. The density of rotifers is also influenced by coliform and fecal coliform because if number of fecal coliform and coliform increased than tolerant limit, they influenced the life of Rotifers. The toxicity of water also increases because B.O.D., C.O.D. and D.O. decreases so it has been studied that population fresh water fishes of Yamuna river specially *Catla catla* going to decrease rapidly due to adverse habitat conditions.

MATERIALS AND METHODS

The study was carried out in May 2016 for a period of one year. Rotifers were collected among the total Zooplankton community and identified with the help of Fleet and Rehnitz method. During collection of Rotifers physico-chemical parameters and population density of fishes also studied.

RESULTS AND DISCUSSION

Significance findings

It has been recorded that pH increased from acidic to alkaline site as well as turbidity clearly indicate that the increasing of turbidity may be due to highly silted water.

D.O. went to decrease which clearly indicated that it is due to organic pollution which decrease the photosynthesis of phytoplanktons. There is adverse condition for survival of rotifers. The depletion of D.O. was due to different kind of effluents from industrial sites of Agra. B.O.D. required for its stabilization under biological conditions.

Parameters	Site A (Kailash Ghat)	Site B (Back of Taj mahal)
pH	7.8	8.09
Temperature	29.0 ^o C	30.5 ^o C
Turbidity	54 NTU	66.0 NTU
D.O.	7.0mg/l	3.4mg/l
B.O.D.	13.5mg/l	143mg/l
C.O.D.	35.0mg/l	260.0mg/l
Coliform	4260.00 MPN/100ml	13989.00 MPN/ 100ml
Fecal Coliform	2483.00 MPN/ 100ml	147689.00 MPN/ 100ml
Rotifers		
(a) Erachonus caudatus	259	-
(b) Branchinous forficura	298	54
(c) B. calyciflorus	2	-
(d) B. quadndentata	43	2
(e) Famia opoliensis	43	21
(f) Polyarthra multiaopenoicutata	6100	60
(g) Asplanehoa brightwela	1798	14
(h) Rotria neptunis	866	04
(i) Pseudodraptomus anna	28	-
(j) Mesocy clopshylamus	87	-
Total	9524	155
Fish		
<i>Catla catla</i>	153	02

Finding of B.O.D. and C.O.D. were significantly increased probably due to washing of dyed and printed clothes from washing ghat as well as due to sewage and dung of cattles surrounding Yamuna river which is similar as observations of Paliwal *et al.*, 2007.

It has been observed that discharge of domestic and municipal sewage is directly poured in Yamuna river without any treatment which was responsible for disturbing habitat of Rotifers and *Catla catla*.

Density of rotifers reported that their number fastly going to decrease from upstream to downstream as reported in Table 1 because number fastly decreased from upstream to downstream as reported that number of fish catches by fisherman have recorded that at upstream site *Catla catla* mean population density is 289 while at downstream site mean population density is recorded as 28. This co-relation advocated a new light that physico-chemical parameter which indicated increasing of pollution from upstream site to

downstream site decline the population of rotifers. This decreasing of rotifers number is directly proportional to edible fishes (*Catla catla*) in Yamuna river of Agra which correlates with the findings of Sharma *et al.*, 2015.

CONCLUSION

Conclusively it indicates alarm for people of Agra that without any treatment drainage of industrial effluents and waste water of city in Yamuna will create a serious problem as well as if we will late then there will not be remedy for save eco-system of Yamuna river.

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