

Study of Physicochemical Parameters of Lentic Ecosystems in Ahmednagar District of Maharashtra State India

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ABSTRACT

Study of physicochemical parameters is very necessary to know its quality. As quality of water is very important for use of water for drinking for human beings and the animals. Lentic ecosystems are important as lakes and ponds are one of the useful surface water resources. In the present study water samples were collected from the lakes in Sangamner and Akole Taluka of Ahmednagar district of Maharashtra state India. The temperature, TDS and pH were recorded on the spot by using thermometer, digital pH and TDS meters were used to measure pH and TDS. The acidity was found in the range of 13mg/l to 48mg/L. The alkalinity was found in the range of 166 mg/L to 506 mg/L. Dissolved Carbon di oxide was found in the range of 11.44 mg/L to 22 mg/L. The dissolved Oxygen was found in the range of 2.03 mg/L to 7.64 mg/L. The pH was found in the range of 7 to 9.5. The electrical conductivity was found in the range of 0.17 to 0.61mS. The TDS was found in the range of 100 to 310 ppm.

Keywords : Physicochemical Parameters, Ecosystem.

I. INTRODUCTION

Water is extremely necessary for the survival of life. Apart from drinking it is very necessary for agriculture, industries, washing of cloths, vehicles, animals and also for dairy industry. Indian economy is mainly agro based. Majority of the Indian population is directly or indirectly depends on the agriculture and agro based industry for their survival. Maharashtra state in India and especially Ahmednagar district is having several milk producing animals. The lakes are one of the major sources of surface water. Review of literature reveals that not much work is done on the physicochemical parameters of lentic ecosystems in Sangamner and Akole talukas of Ahmednagar district of Maharashtra state in India. Therefore the present work was undertaken. Physicochemical parameters of

Gulabsagar water body in Jodhpur was studied by Chouhan and Vyas 2017. Nayaka and Shridhara 2018 has carried out assessment of physicochemical parameters of Gundamma lake in Tumkur in Karnataka. Nama and Dhanraj 2018 has assessed the water quality of Palasani pond in Jodhpur by studying physicochemical parameters. Bhagde et al 2016 has studied hydrobiology of Devtale lake in Sangamner Taluka of Ahmednagar district of Maharashtra state. Water quality index of some lakes around Kolhapur city of Maharashtra was determined by Anekar and Dongre 2016. Gautam and Shrivastva 2017 studied the physicochemical parameters of pond in Bhopal by analyzing the water sample. Nakhate and Kale 2018 studied the physicochemical parameters in Kankaleshwar lake in Beed district. Joseph Ndjama et al 2017 has done the work to study physicochemical and biological

characteristics of Nkilobisson artificial lake in Yaounde Cameroon.

II. METHODS AND MATERIAL

Water samples were collected from the lakes in Sangamner and Akole Taluka of Ahmednagar district in Maharashtra state, India. Temperature ,pH and

TDS were recorded on the spot. Thermometer was used to record the temperature. Digital pH and TDS meters are used to record pH and TDS respectively. Acidity, dissolved carbon di oxide ,Alkalinity and Hardness was estimated by the methods given by Maiti 2011.Oxygen was fixed using DO bottles and Winkeler's solution. Dissolved oxygen was estimated by using Winkler's method.

III. RESULTS AND DISCUSSION

Sr. No	Parameters	Kombhalne	Chandgirwadi	Khirvire 1	Khirvire 2	Dhamangaon Awari
1	Acidity	48	13	13	35	43
2	Alkalinity	166	273	343	410	506
3	Carbon di oxide	22	22	11.44	14.52	10.12
4	Dissolved oxygen	2.024	4.29	3.23	7.64	4.11
5	pH	8.7	8.8	9.5	7.0	7.0
6	TDS	130	100	180	310	300
7	Electrical conductivity	0.26	0.17	0.31	0.61	0.38
8	Hardness	104.6	124.6	116.6	210.4	120

Acidity : The acidity was found in the range of 13mg/l to 48mg/L ,at Kombhalne it was found to be 48mg/L, at Chandgirwadi 13mg/L, at Khirvire 1mg/L, it was 13mg/L, 35mg/L at Khirvire 2mg/L and at Dhamangaon Awari 43 mg/L.

Alkalinity : The alkalinity was found in the range of 166 mg/l to 506 mg/l . It was 166 mg/l at Kombhalne , at Chandgirwadi 273 mg/l, at Khirvire 1 343 mg/l and at Khirvire 2mg/L it was 410 mg/L and at Dhamangaon Awari 506 mg/L.

Dissolved Carbon di oxide : Dissolve Carbon di oxide was found in the range of . 11.44 mg/L to 22 mg/L. At Kombhalne 22mg/L at Chandgirwadi 22mg/l, at Khirvire 1 it was 11.44mg/L, at Khirvire 2mg/L, 14.52 mg/L and Dhamangaon Awari 10.12 mg/L.

Dissolved Oxygen : The dissolved Oxygen was found in the range of 2.03 mg/lLto7.64 mg/L. It was 2.024

mg/L at Kombhalne , at Chandgirwadi 4.29 mg/L, at Khirvire1 it was 3.23 mg/L and 7.64 mg/L at Khirvire 2mg/L and at Dhamangaon Awari 4.11 mg/L.

pH : The pH was found in the range of 7 to 9.5. It was 8.7 at Kombhalne , at Chandgirwadi 8.8, at Khirvire 1 it was 9.5 and at Khirvire 2 it was 7 and at Dhamangaon Awari 7.

TDS : The TDS was found in the range of 100 to 310. It was 130 at Kombhalne , at Chandgirwadi 100, at Khirvire 1 it was180 , at Khirvire 2 it was 310 and at Dhamangaon Awari 300.

Electrical Conductivity: The electrical conductivity was found in the range of 0.17 to 0.61mS.It was 0.26mS at Kombhalne , at Chandgirwadi 0.17mS, at Khirvire 1 it was 0.31mS, 0.61mS at Khirvire 2mS and at Dhamangaon Awari 0.38mS.

Hardness : The hardness was found in the range of 104 to 210.It was 104.6 at Kombhalne , at

Chandgirwadi 124.6, at Khirvire 1 it was 116.6 and at Khirvire 2 it was 210.4 Dhamangaon Awari 120.

Acidity was minimum at Chandgirwadi and Kombhalne. Alkalinity was maximum at Dhamangaon Awari. And minimum at Kombhalne. Dissolved Carbon dioxide was maximum at Kombhalne and Chandgirwadi and minimum at Dhamangaon Awari. dissolved oxygen was maximum at Khirviri 2 and minimum at Kombhalne .pH was maximum at Khirvire 1 and minimum at Khirvire 2 and Dhamangaon Awari. TDS was maximum at Khirvire 2 and minimum at Chandgirwadi. Electrical conductivity was maximum at Chandgirwadi and minimum at Khirvire 2. Hardness was minimum at Kombhalne and maximum at Khirvire 2. At all the spots acidity and alkalinity were found inversely proportional. Similarly dissolved Carbon di oxide and dissolved Oxygen were also inversely proportional.

IV. CONCLUSION

From the results obtained it is observed that the physicochemical parameters vary at different locations. It is might be due to variation in topography geographical conditions.

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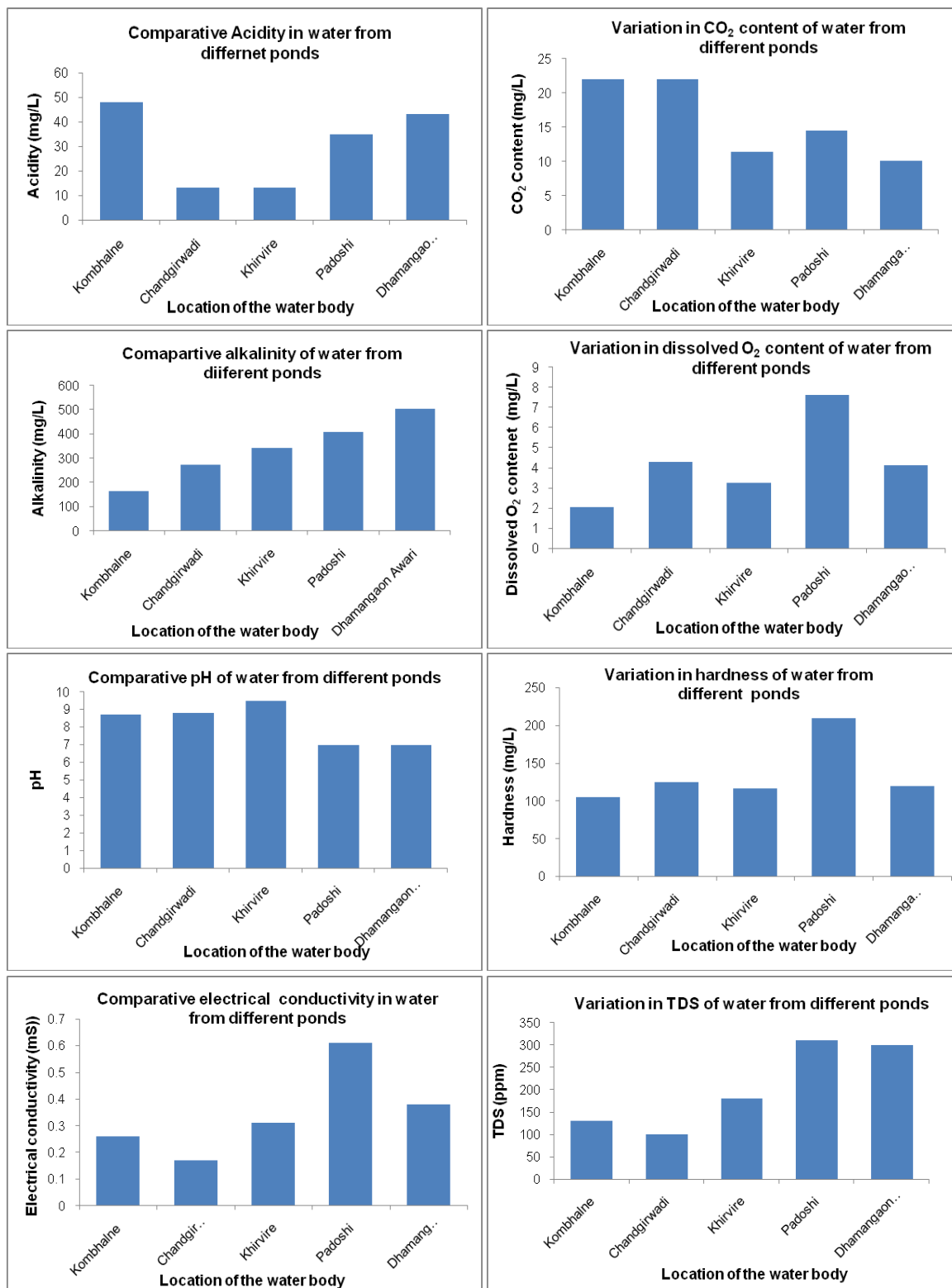
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Kumbhalne



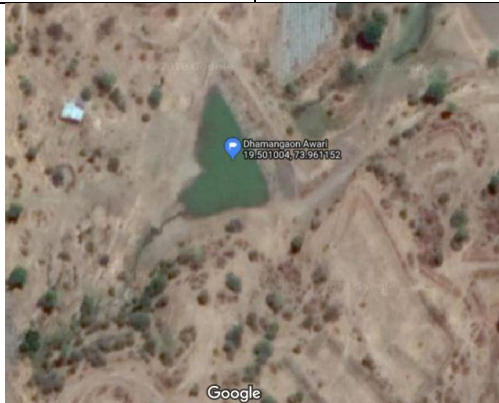
Chanddirwadi



Khirvire 1



Khirvire 2



Dhamangaon Awari

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