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Seasonal variation of some physico-chemical parameters from Erai river water at three different stations near Chandrapur district (M.S.) India

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Abstract

To assess the water quality of Erai river were investigated on monthly basis for a period of two year by using standard procedures at three different sampling stations, seasonal variations in water temperature, pH, total alkalinity, total hardness, calcium and magnesium were recorded. The nutrients are included in sufficient amount for the growth of aquatic organisms in the river. Present work also embodies suggestion for the conservation of river environment.

Keywords: E*rai river, seasonal variations, conservation and environment.*

Introduction

One of the essential elements of life in the world is water. Different types of water sources are used by different people and other animals. All living organisms needs water for their survival including drinking, washing of cloth, preparation of food, irrigation purpose and manufacturing in industry and many other ways people used freshwater sources. Although, less than 1% of the water that covers more than 70% of the earth's surface is fresh water and it is not dispersed equally around the globe. As a significant portion of the population in and around the city relies on the water of the Erai river for their everyday needs, there has been a constant demand for it. Additionally, the businesses within the city take a lot of water from the river for their manufacturing processes. Untreated sewage is discharged straight into the river by the city's Municipal Corporation, which causes significant water contamination. The river is also receiving partially treated waste water from the factories, which has a direct impact on plant and animal life. The water's quality has been degraded to the point that it is no longer safe for human consumption and aquatic species' lifespan has been shortened by such persistent efforts (Shende and Rathoure, 2021).

Materials and Methods

Three different sites selected for study namely, Kitali site, Hadasti site and Datala Bridge Site. The sample were analysed every month of two year period during June 2021 - May 2023. During the investigation the water sample were collected, some physico-chemical parameters investigated on the bank of river site wise namely, water temperature and pH some parameters like total alkalinity, total hardness, Mg hardness, Ca hardness, were studied in laboratory as per the guideline given by APHA, (2012) and NEERI (2012).

Results and Discussion

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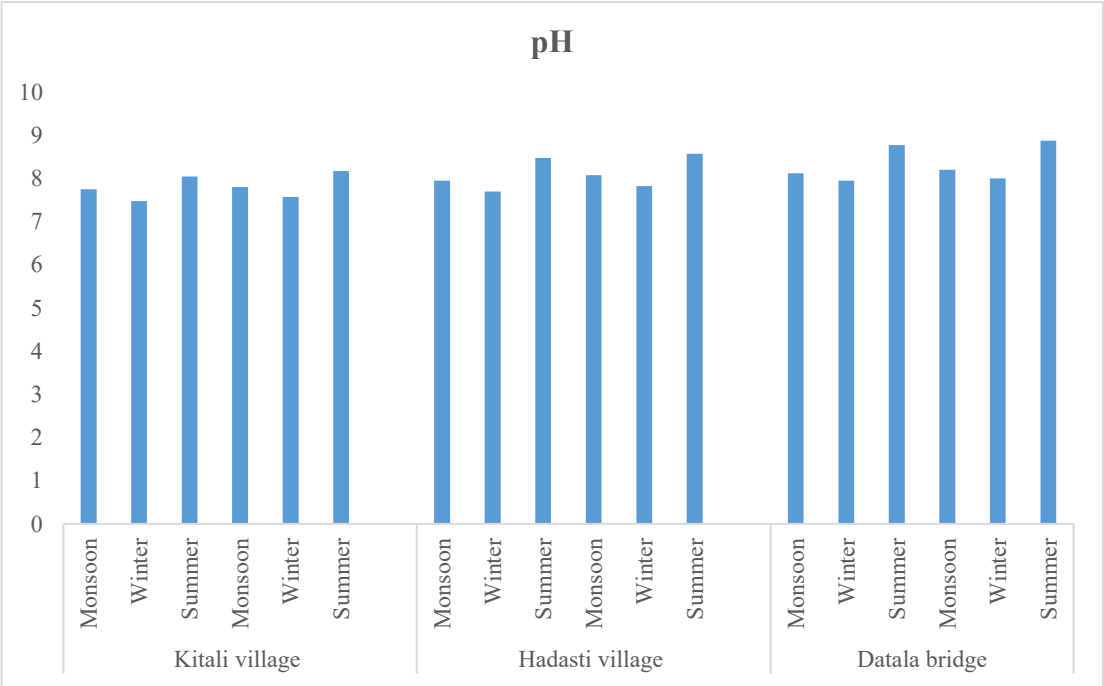


Figure no. 1: Graph showing seasonal variation of Water temperature from Erai river, at three sites Kitali village, Hadasti village and Datala bridge during June 2021 to May 2023.

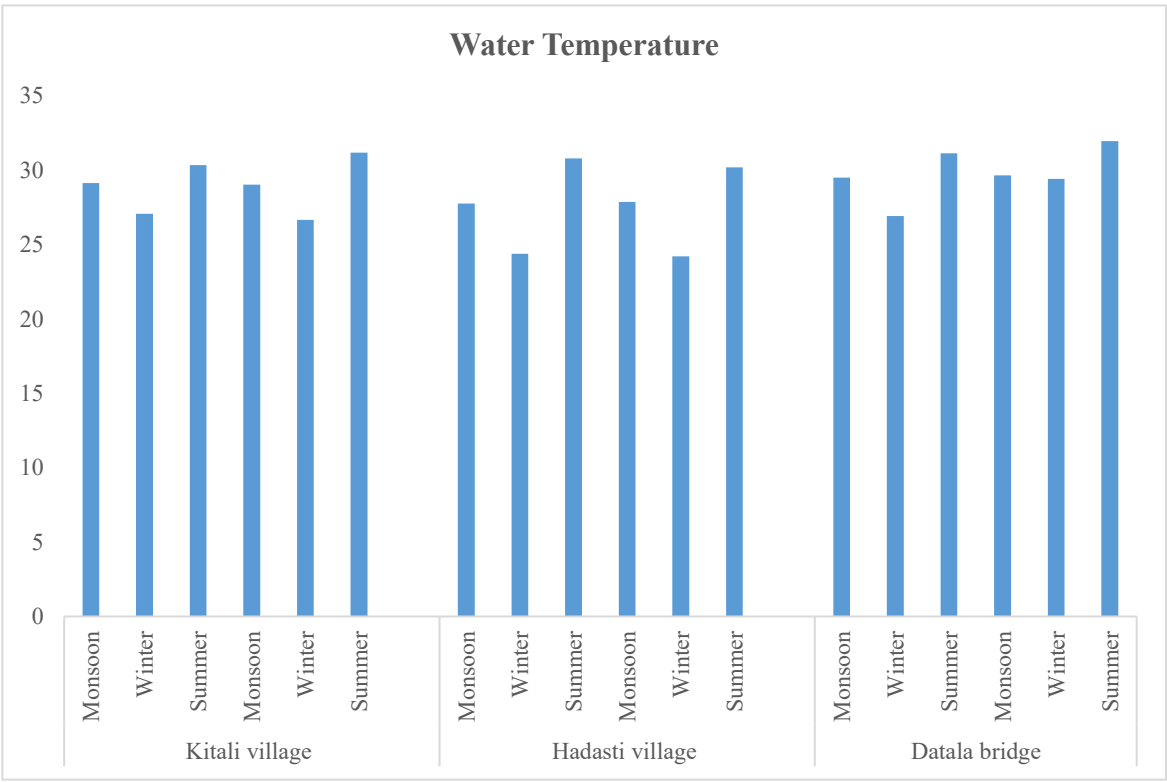


Figure no. 2: Graph showing seasonal variation of pH from Erai river, at three sites Kitali village, Hadasti village and Datala bridge during June 2021 to May 2023.

Figure no. 3: Graph showing seasonal variation of Total alkalinity from Erai river, at three sites Kitali village, Hadasti village and Datala bridge during June 2021 to May 2023.

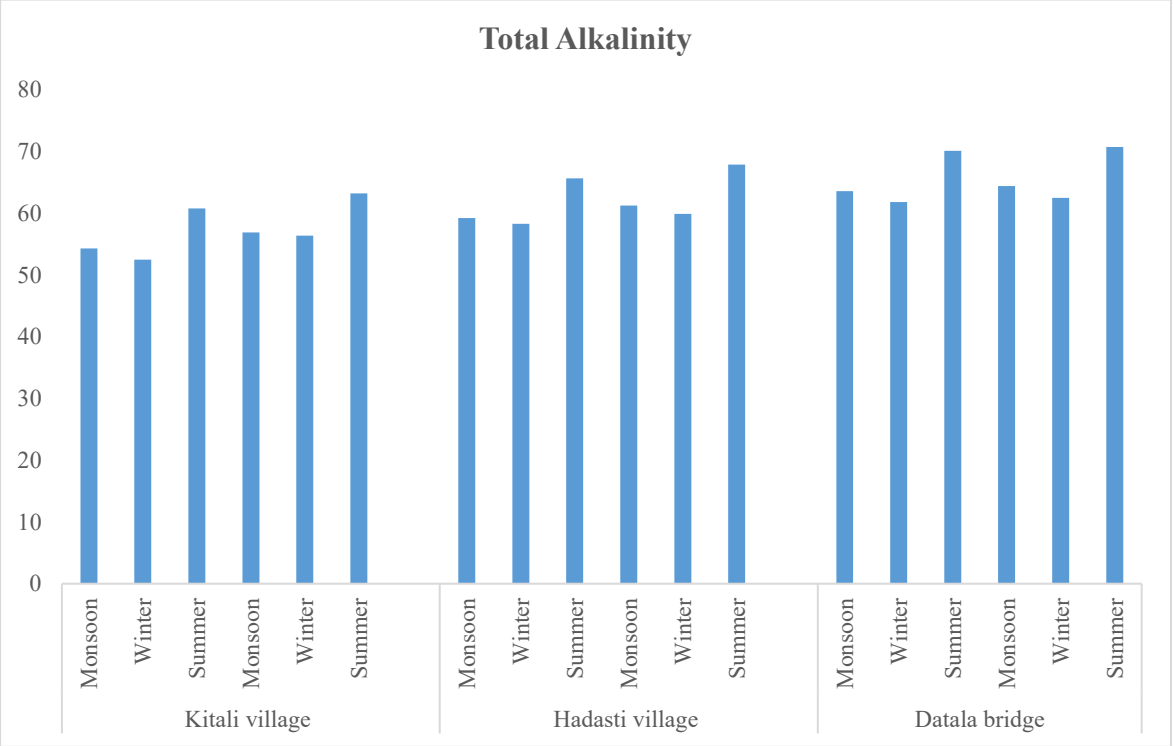


Figure no. 4: Graph showing seasonal variation of Total Hardness from Erai river, at three sites Kitali village, Hadasti village and Datala bridge during June 2021 to May 2023.

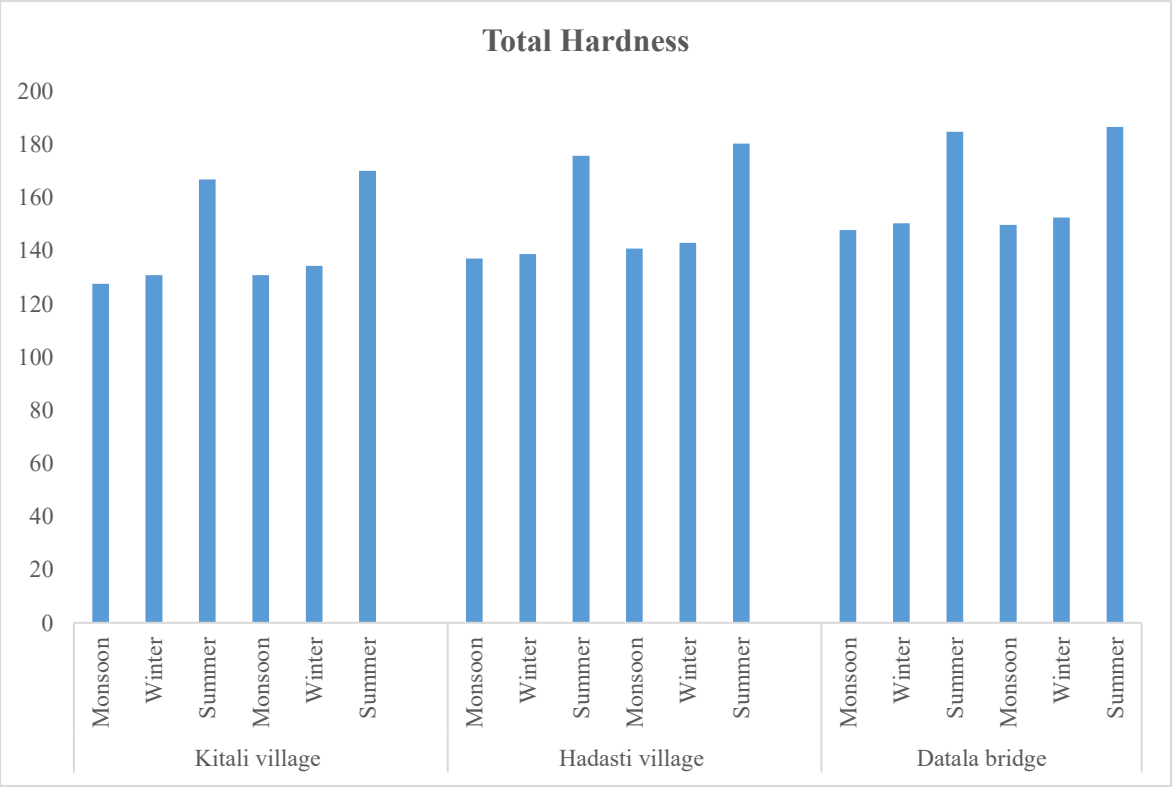


Figure no. 5: Graph showing seasonal variation of Calcium from Erai river, at three sites Kitali village, Hadasti village and Datala bridge during June 2021 to May 2023.

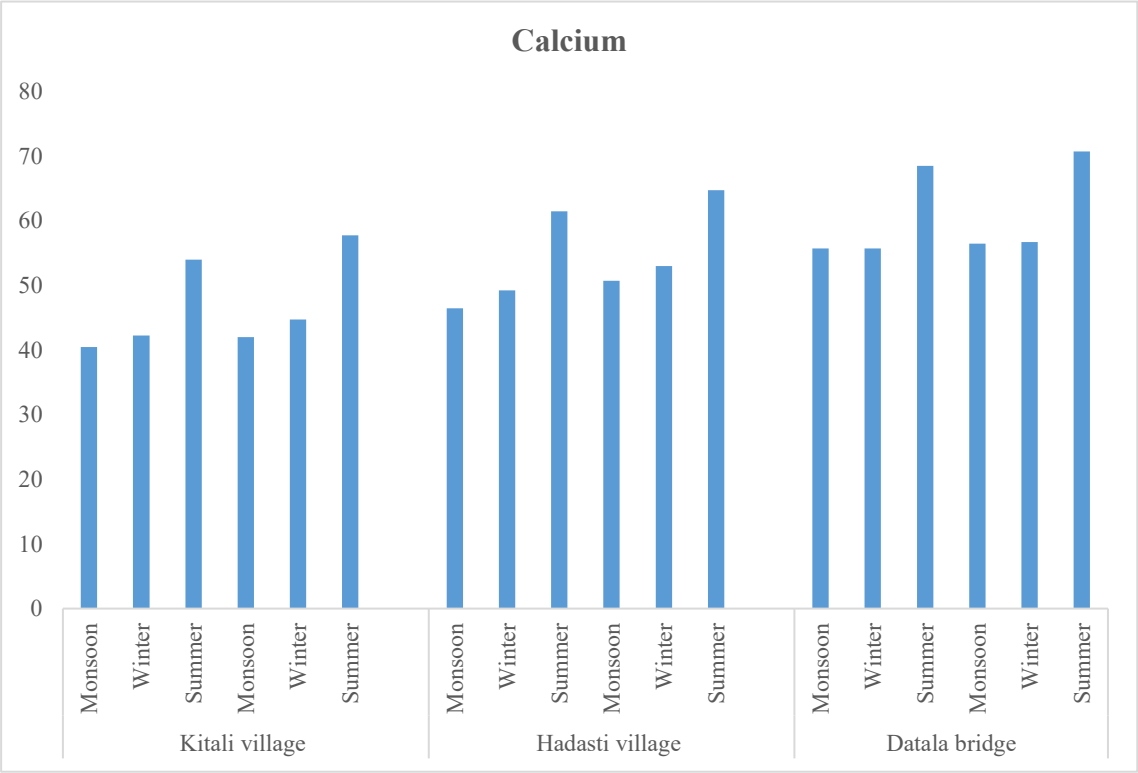
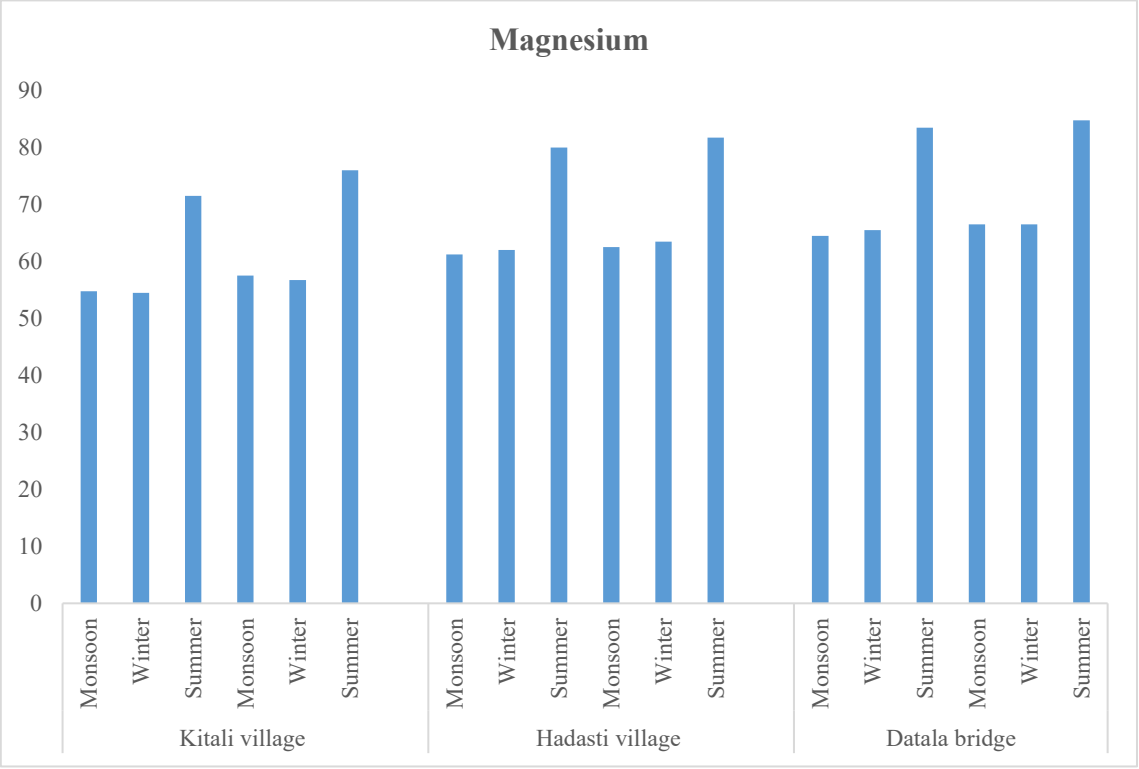


Figure no. 6: Graph showing seasonal variation of Magnesium from Erai river, at three sites Kitali village, Hadasti village and Datala bridge during June 2021 to May 2023.



From the above graphical data of some physic-chemical parameters of Erai river water the minimum water temperature noted in winter season and maximum during the summer season at all the sites in which Datala bridge site showing higher values, moderate in Hadasti village, and lower down at Kitali village. Same phenomenon observed in pH, total alkalinity, total hardness, calcium and magnesium (Figure no 1 to 6). All the values observed maximum during summer season and minimum during winter season at Erai river water might be due to higher temperature and anthropogenic activities during summer months the values reported higher than winter and monsoon season. The findings are corroborated with Gharpure et al., (2017) from Vena river Hingana. Also Watkar et al., (2017) noted similar investigatin from Kolar river near Saoner region Nagpur district Maharashtra. Similarly, Shende and Rathoure (2021) from Erai river (Chandrapur region).

Conclusion

The seasonal data of some physico-chemical parameters from Erai river water under the permissible limit but need some action for anthropogenic activities which is main cause of river pollution because this pollution affect the aquatic fauna and flora of Erai river water.

Acknowledgement

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