HYDROCHEMICAL STUDY OF MULA RIVER IN SANGAMNER TALUKA OF AHMEDNAGER DISTRICT OF MAHARASHTRA STATE, INDIA

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ABSTRACT

From the ancient days civilization was developed on the banks of rivers because of the need of water for various purposes. Study of Hydrochemistry of the river water in very necessary for the its sustainable use for the mankind. In the present study Mula river in Sangamner Taluka of Ahmednagar district of Maharashtra state India was selected for the study. Hydrochemical parameters along with temperature were analyzed during the months of August, September, December and January. Due to prevailing worst drought situation in Maharashtra no water was available during the summer season for the analysis. It was found that hydrological parameters have seasonal variations. It is suggested that the river water can be used for Pisciculture practices.

KEYWORDS: Hydrochemistry, Pisciculture, Sangamner, Sakur

Introduction

Rivers are major source of water which is used for agriculture, drinking, domestic and industrial requirements. More than 50% of Indian population is staying in rural area .Rural economy is mainly dependent on agricultural sector. Rural economy of Ahmednager district in Maharashtra state is also mainly depend on agriculture. In the present study Sangamner Taluka of Ahmednagar district was selected. Mula river is one of the main source of water to southern part of Sangamner . Major crops like Sugarcane, Pomegranate, Onion and Tomato are cultivated in the area selected for this study i.e. Jambut, Sakur villages . Rearing of livestock for milk production, Sheep farming and poultry are major source of income to the rural people. For all these good quality of water is required. Water quality is having great importance in the aquaculture practices. Knowledge of hydrochemistry is necessary to know about the water quality. Therefore the present study was under taken. To know the hydrochemistry of water it is very necessary to know the physicochemical parameters of that particular water body and also seasonal variations in the parameters. Several researchers have done work on such aspects. Tyagi et al (2003).

Sheeba and Ramanujan (2009) studied the physic-chemical parameters of Ithikkara river Kerala, India .They observed that physicochemical characteristics were almost at the optimum level. Joshi et al (2009) studied the physicochemical parameters to assess the water quality of river Ganga for drinking purpose in Haridwar district. Agarwal and Saxena (2011) carried out the assessment of pollution by physicochemical water parameters using regression analysis during their study of Gangan river at Muradabad. This study gives a tool to find the value of physicochemical parameters and extend of pollution theoretically. Mandal et al (2012) studied some physicochemical water parameters of Karola river West Bengal for estimation of pollution status. Patil et al (2012), Bajpai (2012) has done the comparative analysis of physicochemical parameters of Hasdeo river Barrage and Arpa river water samples of Bilaspur Region. Suitable suggestions were made by hem to improve the quality of river water of Bilaspur region. Water quality analysis of river Mahanadi in Cuttak city, Odisha was carried out by Panigrahi and Patra (2013). By studying physicochemical parameters of the river. Comparative review of physicochemical parameters of Pavana river was done by Jain and Shrivastava (2014).Seasonal changes in physicochemical parameters of Mullai Periyar river in Tamil Nadu was studied by Roshinebegam and Selvakumar (2014).

Physicochemical assessment of the water quality of Buhisan river, Cebu, Philippines was done by Maglangit et al (2014). Investigation of water quality parameters of Nag river in Nagpur region was done by Baitule et al (2015).They observed that ecosystem of Nag river is extremely polluted by urban waste pollution. Presently fishes from Mula dam near Rahuri are supplied to various parts of the Ahmednagar district. Pisciculture practices can be carried out in the Jambut Sakur. Fishes like Common Carp Cyprinus carpio, Silver carp, Labeo calbasu, Labeo bata. China pundits...
and *Mystus seenghala* can be cultured along with the Indian major carps *Labeo rohita*, *Catla catla*, *Cirrhina mrigala* and *Wallago attu*. This can result in hike of employment.

**MATERIALS AND METHODS**

Water samples were collected from the sampling station at Jambut-Sakur village (fig 1, 2 & 3) in Sangamner Taluka of Ahmadnagar district in the month of August, September, December, January. Temperature was recorded by using thermometer, pH was measured by using Hanna pen pH meter. Water samples were collected in D.O bottles and oxygen was fixed on the spot by using Winker A and B solutions. Water samples were also collected for other parameters and brought to the laboratory and analyzed by using methods given by Maiti (2011).

**RESULTS AND DISCUSSION**

**Name of the spot : Jambut –Sakur**

<table>
<thead>
<tr>
<th>Table No.1:</th>
<th>Seasonal variation in the hydrochemical parameters of water from Mula river, Sakur, Maharashtra</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Month</strong></td>
<td><strong>Alkalinity (mg/l)</strong></td>
</tr>
<tr>
<td>August</td>
<td>210</td>
</tr>
<tr>
<td>September</td>
<td>180</td>
</tr>
<tr>
<td>December</td>
<td>67</td>
</tr>
<tr>
<td>January</td>
<td>85</td>
</tr>
</tbody>
</table>

From the results (table 1, chart 1) obtained it was observed that Alkalinity was in the range of 67mg/l to 210 mg/l. In the month December it was lowest 67mg/l and it was highest 210 mg/l in the month of August. It was 85 mg/l in the month of January and 180mg/l in September. Acidity was 56, 28.7, 17 and 21mg/l in the months of August, September, December and January respectively.

Dissolved oxygen was in the range of 4.23 to 6.4 mg/l. It was 5.24mg/l, 4.23mg/l, 6.4mg/l and 5.9mg/l in the months of August, September, December and January respectively. CO₂ was 36mg/l, 20mg/l, 8.64mg/l and 6.83 mg/l during months of August, September, December and January respectively. Hardness was 90 mg/l, 85 mg/l, 110 mg/l and 125 mg/l during August, September, December and January respectively. pH was found to be 6.7, 6.7, 7.4 and 7.9 in the month of August, September, December and January respectively. Temperature was 30°C, 28°C, 28°C and 26°C in the months of August, September, December and January.
Studies on the physicochemical parameters and correlation coefficient of the river Ganga at holy place Shrinverpur, Allahabad was carried out by Tripathi et al (2014). They observed seasonal variations at different sampling sites of Shringverpur. In different seasons the fluctuation occurred in physicochemical parameters. Shetty et al. (2013) studied the seasonal variation in the physicochemical characteristics along the upstream of Tungabhadra river western ghats India and observed that physicochemical parameters have notable seasonal variations. Study of Seasonal variations in physicochemical parameters of water collected from Kedilam river at Visoor Cuddalore district in Tamil Nadu was done by Munian and Ambedkar (2011). In the present study also physicochemical parameters have seasonal fluctuations.

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REFERENCES


