ISSN 2394 - 7837

ARTICLE

Physico-Chemical Characteristics and the Distribution of Algae of Meenpidippara, Kottarakkara.

Lekshmi G.M., Sibin Babu, Abhila P S, Anila R, Anjali A S, Anjali Krishna K S, Chithra T, Jyothilekshmi S R, Rabitha Krishnan, Rosy Baby, Shalu Kumari K, Suja Sajeev

Received 01/05/2018 Accepted 05/07/2018

Abstract

The Meenpidippara pond is situated on the western side of Kottarakara, Kerala. This pond is remarkably perennial source of water and it is surrounded by rocks, it never dries up. In the present investigation emphasis was laid on the physico-chemical characteristics in relation to the distribution of algae of Meenpidippara for a period of three months from November to January 2012. During the study period atmospheric temperature varies from 32°C to 33.5°C. pH did not show much variation. It vary from 7.1 to 7.2. Salinity shows slight variation and maximum recorded in December. Phosphate and nitrate concentration was highest in November (118ppm and 0.4708 ppm). Sulphate was present high in January (5.6 ppm), Sodium and potassium was highest in December (15 ppm and 6 ppm). Two types of algae, spirogyra and Ulothrix were identified during the study period. Spirogyra is very abundant in the study area.The study revealed that the quality of water is good. So continuous evaluation and analysis of water is needed to check whether this water is used for drinking purpose.

Keywords: Meenpidippara, Spirogyra, Ulothrix

Introduction

Pond ecosystem is a functional complex of mutually depending and regularly interacting abiotic and biotic components. Its abiotic components include its physical conditions and chemical characteristics. Biotic components include the diverse forms of life inhabiting it. The physical features and chemical characteristics of a pond ecosystem are almost constant. The physical factors include climatic and edaphic conditions. Climatic conditions, include solar radiation with its heat and light,water temperature,rainfall etc. All depths of a shallow pond may be well illuminated. The heat and intensity of light and temperature may be roughly uniform all over the pond. These conditions favour vegetation and planktonic and animal life.

The Meenpidippara pond is situated on the western side of Kottarakara near to St. Gregorios College. This pond is remarkably perennial source of water and it is surrounded by rocks, it never dries up. In the present investigation emphasis was laid on the physico-chemical characteristics in relation to the distribution of algae of Meenpidippara for a period of three months from November to January 2012.

Materials and Methods

Sample collected was carried out by correct handling and preservation for obtain accurate result. The samples for chemical and biological analysis were taken to the laboratory in a suitable condition and the samples are protected from other environmental factors during transportation. pH was measured using a digital pH meter the atmospheric and water temperature were measured using a thermometer.Chemical analysis of water was done according to the standard procedure.

Results and Discussion

During the study period atmospheric temperature varies from 32°C to 33.5°C and highest temperature recorded in January (33.5°C) pH did not show much variation, it varies from 7.1 to 7.2. Salinity shows slight variation and maximum recorded in December 118ppm phosphate and nitrate concentration was highest in November (0.4708 ppm) and 0.3752 ppm sulphate was present high in January (5.6 ppm). Sodium and potassium was highest in December 15 ppm and 6 ppm (Table.1). Two types of algae, spirogyra and ulothrix were identified during the study period. Spirogyra was very abundant in the study area.

In the present study higher amount of phosphate concentration was recorded on November and January. This increased value could be attributed to the increase in atmospheric temperature. Similar observations made by Bose (1956) in the hydrology of the Hooghly estuary reported that phosphate content of the system is normally high during the hot months. Nitrite concentration was high during November but December its concentration is low. Maximum concentration of nitrate is due to the reduction

Department of Botany, St. Gregorios College, Kottarakara, Kerala.
*Corresponding Author email:gmlekshmi@gmail.com

Table 1. Variation in physico chemical parameters

Sl.no.	Parameters	November	December	January
1	Air temperature	33°C	32°C	33.5°C
2	Water temperature	27°C	26°C	28°C
3	Water pH	7.1	7.2	7.2
4	Salinity	70.3ppm	118ppm	104ppm
5	Electrical conductance	257Ms	132.5Ms	212Ms
6	Total dissolved solids	161ppm	94.4ppm	150ppm
7	phosphate	0.4708ppm	0.126ppm	0.374ppm
8	Nitrite	0.3752ppm	-	0.237ppm
9	Sulphate	5.3714ppm	5.2ppm	5.6ppm
10	Sodium	10ppm	15ppm	12ppm
11	Pottassium	3ppm	6ppm	3ppm

of nitrate and oxidation of ammonia combined together or individually might have enhanced the nitrite concentration in the study area similar observation was also made by Anbazhagan (1988). Concentration of sulphate did not show much variation during the three months. The importance of nutrients such as phosphate, nitrate and sulphate for the phytoplankton growth and production was emphasized by Krishnamurthy (1974). The present study showed that the majority of algal isolates from water habitat during the three months are dominated by chlorophycean members such as spirogyra and ulothrix.

The study revealed that the quality of water is good. So continuous evaluation and analysis of water is needed to check whether this water is used for drinking purpose.

References

1. Anbazhagan, P. 1988. Hydrobiology and benthic ecology of Kodiakkarai coastal sanctuary. PhD thesis, Annamalaiuniversity. India, pp 208.
2. Bose, B.B. 1956. Observations on the hydrology of the Hooghly estuary. Indian J.Fish. 3 (1) : 101 – 118.
3. Krishnamurthy. 1974. Studies in plankton and nutrients in the nearshore and estuarine water of Porto Novo.Phd thesis.Annamalaiuniversity. P : 239.