conference series.com

3rd World Congress on

Climate Change and Global Warming

October 16-17, 2017   Dubai, UAE

An exploratory field survey of 12 lakes of Bangalore, Karnataka, India

Geetika Pant, Cotek Temitayo and Prashanthi Karyala
Indian Academy Centre for Research & PG Studies, India

Statement of the Problem: Bangalore city, Karnataka, India used to be known as "The City of Lakes". The rapid urbanization and influx of people has made this city as "Silicon Valley of India". This intense and rapid increase of urban sprawl has resulted in disappearance of wetlands and sharp decline in the number of water bodies. The amalgamation of physical, biological and anthropogenic activities have affected the physiochemical properties of the lakes in the city leading to drastic imbalance in the aquatic life and overall ecological quality. Therefore, there is a need for continuous assessment and monitoring of lake water qualities.

Methodology: The water samples from 12 different lakes in and around Bangalore city were collected and analyzed for various physiochemical parameters (pH, Conductivity, DO, COD, total hardness, alkalinity, phosphate, ammonium and sulfate) by following APHA (2005). The CFU and colony morphology were determined by standard microbiological techniques. Principal Component Analysis (PCA) was carried out on the scaled data for classification of lake samples based on their physiochemical parameters in R (Hierarchical cluster analysis).

Findings: The ranges of the physiochemical parameters of the 12 lake water samples were as follows: pH (7 to 10), conductivity (550 to 1830 mmho/cm), DO (0.4 to 2.0 mg/l), COD (30 to 94 mg/l), total hardness (228 to 791 mg/l), phenolphthalein alkalinity (absent in all the lake samples except for Ulsoor Lake), methyl orange alkalinity (100 to 425 mg/l). There were 4 lakes whose ammonium concentration was higher than 300 mg/l. Levels of phosphate were negligible in all the samples except 3 lakes at a range of 141 to 169 mg/l. PCA showed clustering of samples based on the physiochemical parameters into three groups with one exception (Ulsoor Lake).

Conclusion & Significance: The comparison of physiochemical parameters of 12 lakes with the standard values of WHO guidelines revealed that most of the parameters analyzed were greater than the acceptable limits. This poses a dangerous threat to both aquatic and human lives. The information provided through this study could aid in sustainable governance of lakes of Bangalore, a critical but severely threatened ecosystem.

Biography

Geetika Pant has more than 14 years of experience in teaching and research in various environmental issues and its impact on the society. Her research work areas are on various environmental models like microbial fuel cells, bio-conservation, biodegradation by microbial analysis and stress response mechanisms in plants.

geetika_biotech@indianacademy.edu.in

Notes:

J Earth Sci Clim Change
ISSN: 2157-7617 JESCC, an open access journal

Climate Congress 2017
October 16-17, 2017

Volume 8, Issue 9 (Suppl)

Page 22