





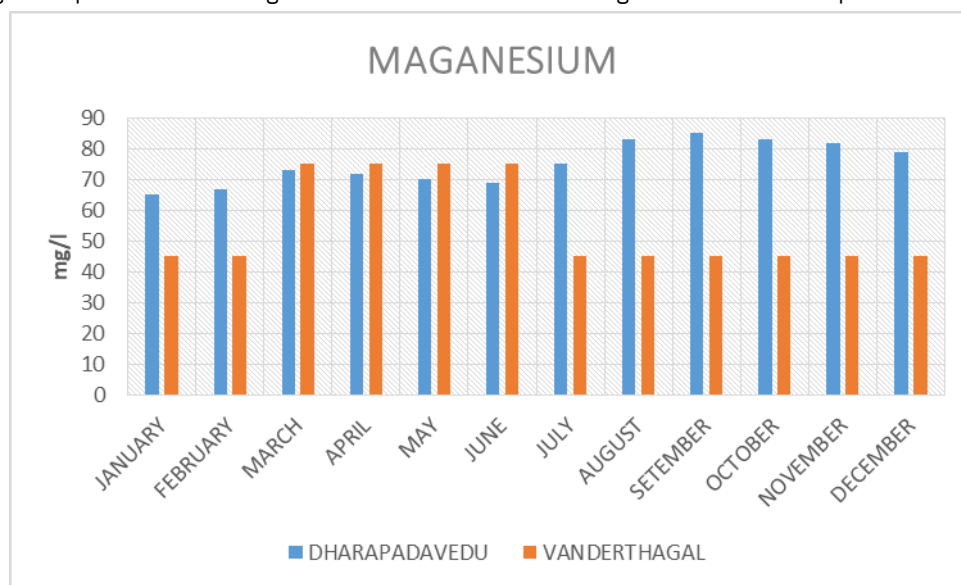






obtained are in accordance with the findings of Tripathy and Pandey, A Murugesan reported low values of magnesium during the winter and the highest during the monsoon (Figure 5).

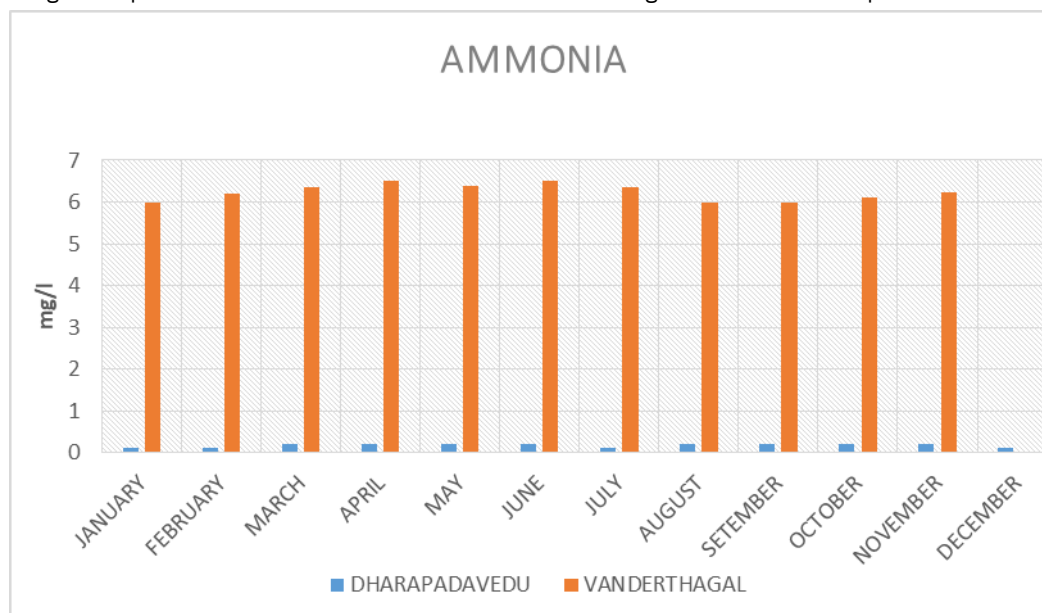
**Figure 5.** This Figure represents the magnesium level of Vandranthangal lake and Dharapadavedu lake for all months.



### Ammonia

In the aquatic environment, ammonia is one of several types of nitrogen. Human health risks will not be created, but aquatic life will be severely harmed. Internal organ systems may be harmed by water containing more than 1 mg/l (ppm) ammonia. According to Sunder S. the findings, the highest concentration of ammonia was found in Vandranthangal (6.5 mg/l) and the lowest in Dharapadavedu (0.1 mg/l). Ammonia is a metabolic waste product released concentrations, ammonia can cause gill damage primarily thorough the gills of fish (Figure 6). The only safe ammonia level is zero. According to Boyd CE, has reported ammonia is more toxic at higher temperature and pH levels above 7.0 and less harmful at lower temperatures and pH levels below 7.0.

**Figure 6.** This Figure represents the ammonia level of Vandranthangal lake and Dharapadavedu lake for all months.

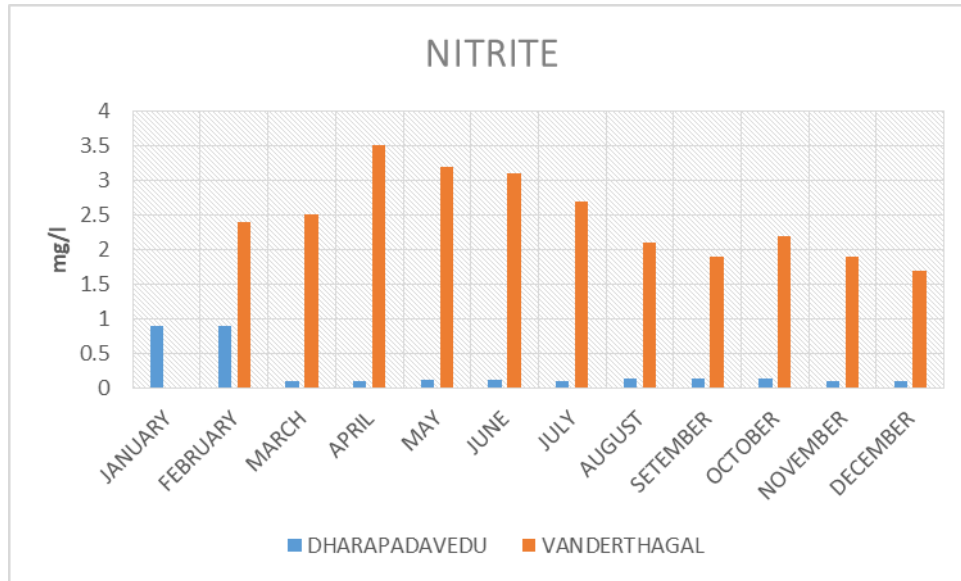


### Nitrite

Nitrites are salts or ester anions of nitrous acid, which can naturally or artificially occur in water. Drinking water with levels of nitrite at or below 10 mg/l is considered safe for everyone. The maximum value of nitrite was noted in Vandranthangal Lake (3.5 mg/l) and the minimum amount of nitrite was recorded in Dharapadavedu lake (0.11 mg/l). It is found in fresh water bodies from 0.0 to 0.14 mg/l and can go up to 2.0 mg/l or higher in polluted waters. Nitrite anion

is generally present in natural waters. Prakash reported that in natural freshwater, a high concentration of nitrite is regarded as an indicator of pollution. Human and animal excreta and also industrial effluents bear huge quantities of nitrite along with nitrogenous compounds. As reported by Barg, values of NO<sub>3</sub>-N are generally lower in unpolluted freshwater bodies than in polluted ones (Figure 7).

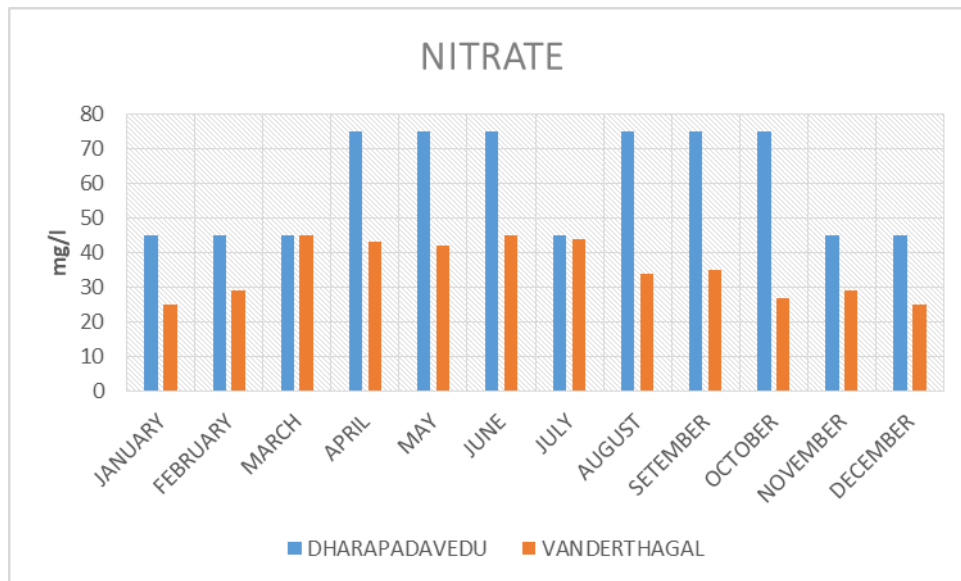
**Figure 7.** This Figure represents the nitrite level of Vandranthangal lake and Dharapadavedu lake for all months.



**Nitrate**

Different agricultural activities yield an increase in the nitrate concentration in the ground and surface water because of physical and biological activities. An increase in the amounts of nitrate-nitrogen in surface water causes different problems, such as the decreasing level of oxygen in the water, which has effects on aquatic life, plants and algae. Blue baby syndrome disease is caused in humans by a high concentration of nitrate. Nitrate is usually present in natural water. The sources of nitrate are from drainage, line stock feed and chemical fertilizer from cultivated land, domestic and industrial sources. It has been reported that values of NO<sub>2</sub>-N are generally higher in unpolluted freshwater bodies than in polluted ones (Figure 8). The maximum amount of nitrate was recorded in Dharapadavedu lake (75 mg/l) and the minimum amount of nitrate in Vandranthangal lake (45 mg/l).

**Figure 8.** This Figure represents the nitrate level of Vandranthangal lake and Dharapadavedu lake for all months.

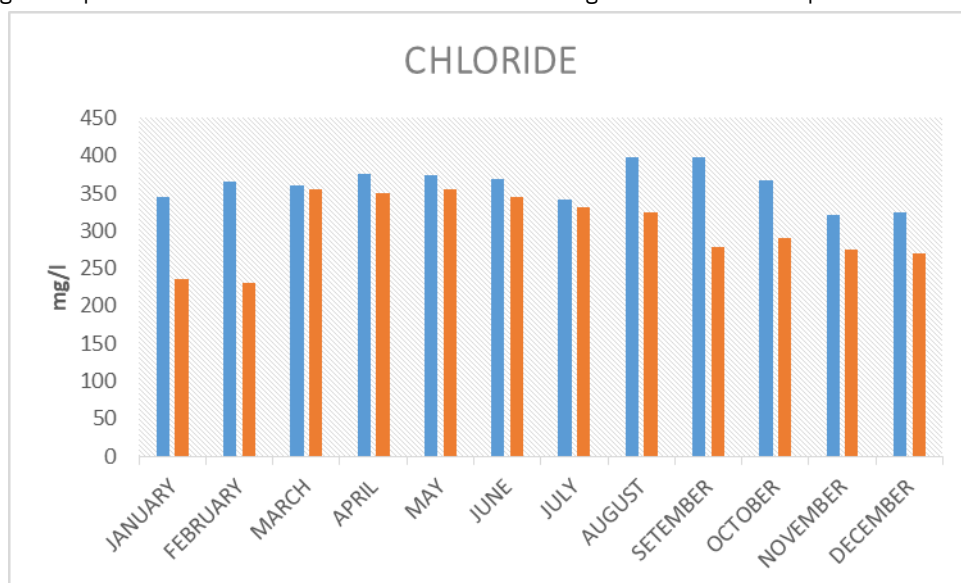


**Chloride**

The chloride anion is commonly found in natural water. According to Prakash, freshwater contains a high concentration of chloride, which is considered an indicator of pollution. Chlorides are one of the most important parameters in

problematic water, and they are also hazardous to aquatic life and irrigation water. Chloride is harmful to human life. In the current study, the highest chloride concentration (398 mg/l) was found in Dharapadavedu lake, while the lowest (230 mg/l) was found in Vandranthangal Lake. The low chloride indicates the absence of pollution as reported by A.Sreenivasan (Figure 9).

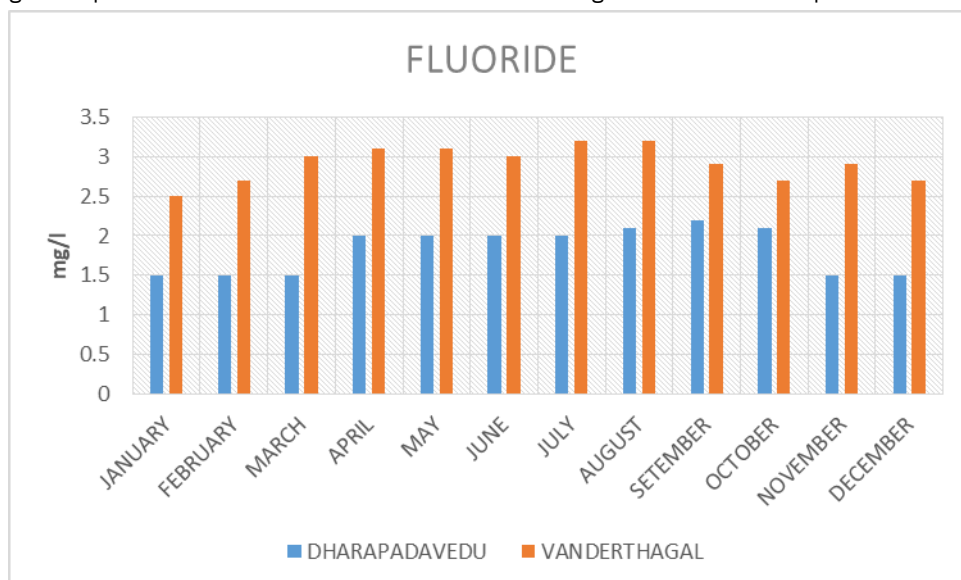
**Figure 9.** This Figure represents the chloride level of Vandranthangal lake and Dharapadavedu lake for all months.



### Fluoride

Fluoride is a chemical compound that is sometimes added to drinking water and toothpaste because it is thought to be beneficial to people's teeth. According to WHO Fluoride levels in drinking water should be between 0.5 and 1.5 mg/l. Vandranthangal had the highest fluoride concentration (3.2 mg/l), while Dharapadavedu had the lowest (1.5 mg/l). The lowest value of fluoride occurs during the monsoon season and can be connected to the dilution of lake by rain water. According to Kedar, G.T. and G. P. Patil the concentration of fluoride can be related to the purity or impurity of water (Figure 10).

**Figure 10.** This Figure represents the fluoride level of Vandranthangal lake and Dharapadavedu lake for all months.



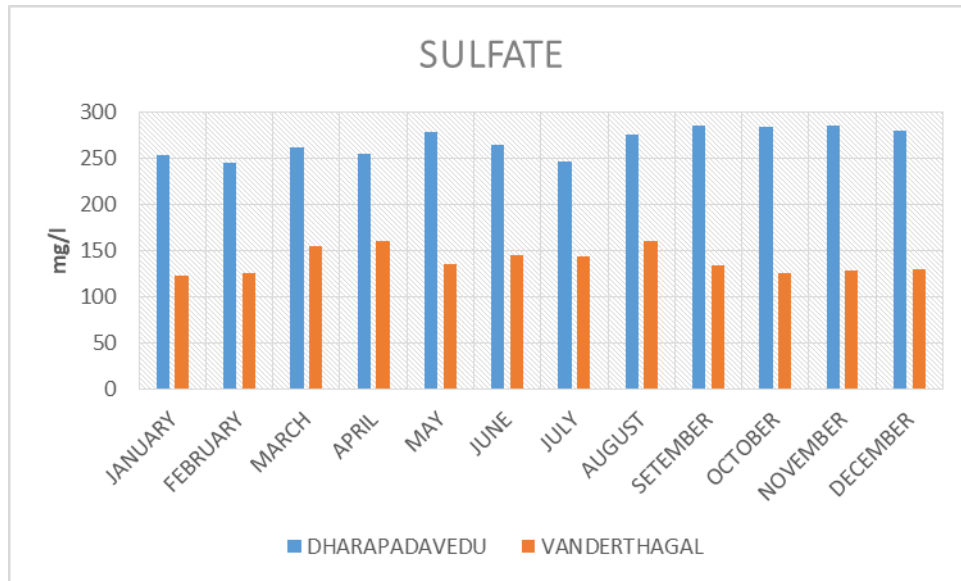
### Sulfate

Sulfate dissolves naturally into groundwater in drinking water. Diarrhoea can be caused by high levels of sulphate in drinking water and it can also cause respiratory problems. The maximum amount of sulfate in the water of Dharapadavedu is (285 mg/l) and in Vandranthangal the maximum is about (160 mg/l). Freshwater sulphate concentrations typically range from 0 to 630 mg/l. The increase in sulphate is related to the decrease in water level



effecting concentration and the release of sulphate during decomposition, which increases with the rise in temperature (Figure 11).

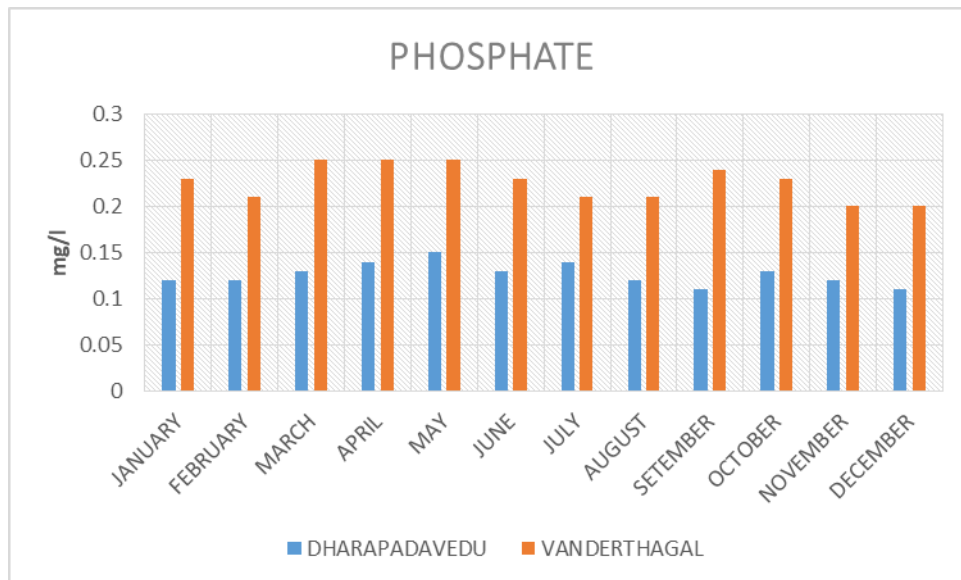
**Figure 11.** This Figure represents the Sulfate level of Vandranthangal lake and Dharapadavedu lake for all months.



**Phosphate**

Pollution is caused by the presence of phosphates in industrial and sewage waste, which promotes the growth of nuisance microbes. According to Nasar SAK, higher phosphate levels in water cause muscle damage, breathing problems and kidney failure. The limit for phosphate phosphorus is 0.1 mg L<sup>-1</sup> standard value. Because phosphorus is actively taken up by plants, it is rarely found in high concentration (Figure 12). This phosphate is primarily derived from domestic sewage and agricultural runoff. Vandranthangal had the highest phosphate content (0.25 mg/l). Dharapadavedu had the lowest phosphate concentration (0.11 mg/l).

**Figure 12.** This Figure represents the phosphate level of Vandranthangal lake and Dharapadavedu lake for all months.

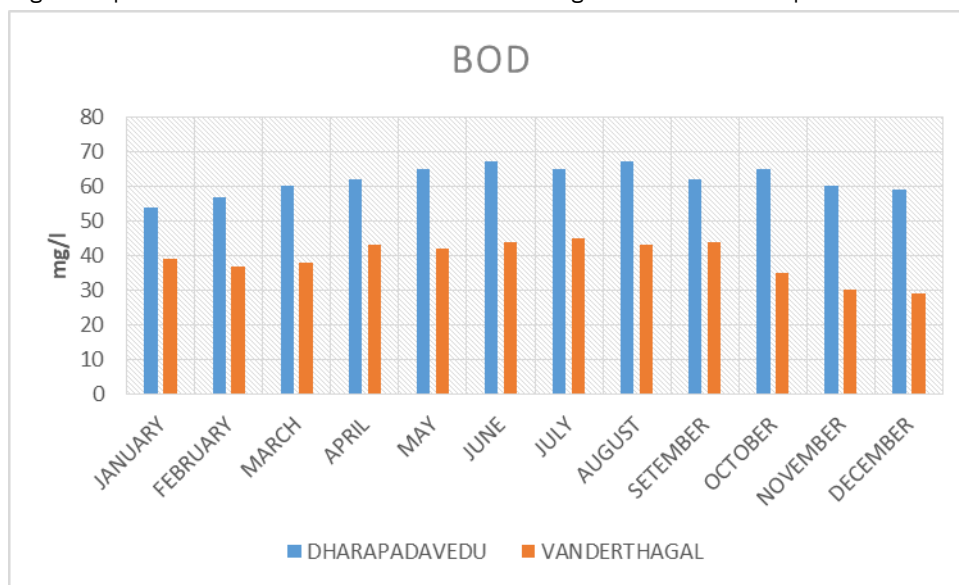


**BOD**

Biochemical Oxygen Demand (BOD) is an important parameter that indicates the magnitude of water pollution by oxidizable organic matter. The biochemical oxygen demand values are extremely useful in the process of assessing the water quality. According to Abida, the biodegradation of organic materials in water increases the biochemical oxygen demand. The amount of oxygen required by living organisms engaged in the utilization and eventual destruction or stabilization of organic water is referred to as BOD. BOD levels were found to be at their highest (67 mg/l) in Dharapadavedu and Vandranthangal had the lowest value (29 mg/l). The high biological oxygen demand values during

the summer indicate the higher growth of bacteria (Figure 13).

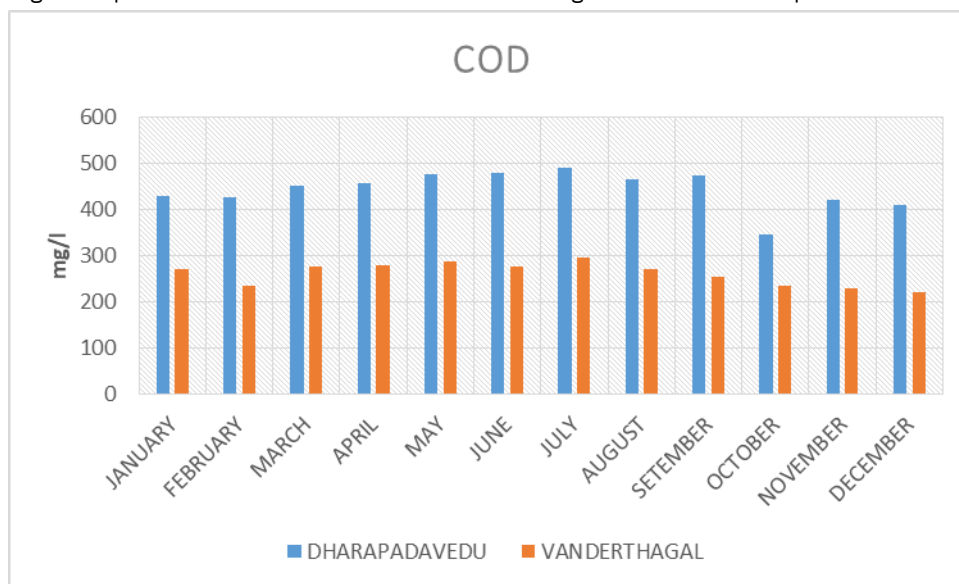
**Figure 13.** This Figure represents the BOD level of Vandranthangal lake and Dharapadavedu lake for all months.



### COD

COD is commonly used to indirectly measure the organic and inorganic compounds in water. COD is the measure of oxygen required for chemical oxidation. Its values are generally higher than BOD values. The amount of organic matter found in water is determined by the COD measurement. As a result, COD can be used to detect organic pollution in surface water (Figure 14). The highest concentration of COD was found in Dharapadavedu water (490 mg/l) and the lowest concentration was found in Vandranthangal lake (220 mg/l).

**Figure 14.** This Figure represents the COD level of Vandranthangal lake and Dharapadavedu lake for all months.



### CONCLUSION

The study assessed the water quality of two lakes in Dharapadavedu and Vandranthangal. Analysis of physicochemical parameters is essential to check the water before it's used for domestic, agricultural, industrial or other purposes. The result revealed that the concentration of ammonia, fluoride and phosphate in Vandranthangal Lake was higher than the standard limit.

## ACKNOWLEDGEMENT

The author is thankful to Dr. Madhavi M, Assistant Professor, PG and research department of zoology, Ethiraj College for Women (Autonomous), Chennai-08. for her valuable guidance and help during the work. I am also thankful to Auxilium College Autonomous Katpadi, Vellore for providing me the facilities to carry out the work.

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