EVALUATION OF WATER QUALITY IN SELECTED MANGROVE ECO SYSTEMS IN THE BATTICALOA DISTRICT

By

MUTHTHUPPILLAI NITHTHIYAKUMAR

FACULTY OF AGRICULTURE

EASTERN UNIVERSITY

SRILANKA

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ABSTRACT

The study was conducted with the aims of assessing the water quality in mangrove and non mangrove areas. It was also aimed to find out the quality variation between mangrove and non mangrove areas. Surface water samples were collected from the different locations in a Batticaloa region during the rainy season. The study areas were selected based on mangroves area and the areas closer to mangrove area but having no mangroves plantation. The area chosen for this study were near Batticaloa lagoon. Ten (10) sites such as Kaluthavalai, Puthukudirippu, Navalady Estuary, Palameenmadu, Muhathuwaram, Pillaiyaradi, Puliyanthivu, Sathrukondan, Kannankuda, Vavunateevu were selected in this study. Samples were collected 3 times in 3 weeks interval from 07-01-2010 to 28-02-2010. Therefore total of 120 water samples were tested during this study. Average of the measurements was considered during data interpretation. The collected water samples were analysed for the quality characteristics such as pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Hardness (Ca & Mg), Dissolved Oxygen (DO), Chemical Oxygen Deamand (COD), Turbidity and Temperature.

This study elucidated that the Batticaloa lagoon water quality fall within the acceptable level for aquatic living organism. The quality parameters of study sites are given in ranges as follows; Temperature 28-29.93 ^{o}C, pH 6.78-9.25, Electrical Conductivity (EC)0.16-13.86 dS/m, Total Dissolved Solids (TDS) 0.15-6.79 meq/l, Hardness (Ca & Mg) 0.96-29.03mg/l, Dissolved Oxygen (DO) 6.13-7.98 mg/l, Chemical Oxygen Deamand (COD) 13.33-1226 mg/l, Turbidity 7-147.66 FAU.

Statistical analysis showed that the physicochemical parameters of water such as EC, TDS, COD, DO, Turbidity and Ca & Mg differ significantly within mangroves and non mangroves areas. There was no any significant difference in pH was observed among 10 locations of non mangroves areas, whereas significant difference was found among mangrove planted area. Similarly, non significant difference in temperature was found among the 10 locations of mangroves areas at the same time significant difference was observed among non mangroves areas.

Further, there were no significant differences in the pH ($P>0.005$) and DO ($P>0.005$) between mangroves and non mangroves areas. However, significant difference was observed in EC, TDS, COD, Temperature, Turbidity and Ca & Mg among mangroves and non mangroves areas. The organic matter content, soil type, distance from sea, water movement, water depth and shading effects are some of the reasons for those observed difference.

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