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Assessment of Biotic and Abiotic Water Factors of Antiao and Jiabong Rivers for Benthic Algae

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Abstract : Eutrophication is a process where in there is a surplus of nutrients present in a lake or river. Harmful cyanobacteria, hypoxia, and primarily algae, which contain toxins, grow because of the excess nutrients. Algal blooms can cause fish kills, limiting the light penetration which reduces growth of aquatic organisms, causing die-offs of plants and produce conditions that are dangerous to aquatic and human life. The main cause for eutrophication is the presence of excessive amounts of phosphorus (P) and nitrogen (N). Nitrogen is necessary for the production of the plant tissues and is usually used to synthesize proteins. Nitrate is a compound that contains nitrogen, and at elevated levels it can cause harmful effects. Excessive amounts of phosphorus, displaced through human activity, is the major cause of algae growth and as well as degraded water quality. To accomplish this study the Assessment of Soluble inorganic nitrogen (SIN), Assessment of Soluble reactive phosphate (SRP), Determination of Chlorophyll a (Chl-a) concentration, and Determination of Dominating Taxa were done. The study addresses the high probability of algal blooms in Maqueda Bay by assessing the biotic and abiotic factors of Antiao and Jiabong rivers. The data predicts the overgrowth of algae and to create awareness to prevent the event from taking place. The study assesses the adverse effects that could be prevented by understanding and controlling algae. This should predict future cases of algal blooms and allow government agencies which require data to create programs to prevent and assess these issues.

Keywords : eutrophication, chlorophyll a, nitrogen, phosphorus, red tide, Kjeldahl method, spectrophotometer, assessment of soluble inorganic nitrogen, SIN, assessment of soluble reactive phosphate, SRP
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