Mikroalga Epiplastik yang Berpotensi Menyebabkan Harmful Algal Bloom (HAB) pada Substrat Sampah Plastik Minuman Kemasan Jenis Polyethylene Terephthalate (PET) di Pantai Marina Ancol, Jakarta Utara = Epiplastic Microalgae Potentially Causing Harmful Algal Bloom (HAB) found on Polyethylene Terephthalate (PET) Plastic Beverage Waste at Marina Ancol Beach, North Jakarta

Khalila Amira, author

Abstrak

Mikroalga epiplastik diketahui berpotensi menyebabkan Harmful Algal Bloom (HAB) menjadikan plastik sebagai vektor transportasi mikroalga berbahaya. Masalah penumpukan sampah dilaporkan di Pantai Marina Ancol. Penelitian ini bertujuan untuk menganalisis mikroalga epiplastik pada substrat sampah plastik minumann kemasan jenis Polyethylene Terephthalate (PET) berdasarkan kelimpahan sel dan faktor lingkungan. Penelitian dilakukan dengan mengumpulkan total 9 sampel sampah plastik di ketiga titik sampling, lalu pemisahan mikroalga dengan kombinasi squeeze method & scraping. Sampel air dipisahkan dari substrat, sampah plastik dihitung berat basahnya, sampel disaring dengan saringan bertingkat, dan pengamatan cover glass di bawah mikroskop cahaya. Mikroalga epiplastik yang ditemukan total 15 genera dari kelas Bacillariophyceae, Dinophyceae, dan Cyanophyceae yang berpotensi menyebabkan HAB. Pseudo-nitzschia, Nitzschia, Prorocentrum, Lyngbya, dan Trichodesmium merupakan genus yang berpotensi toksik. Prorocentrum, Blixaea, Tripos, dan Trichodesmium diketahui pernah menyebabkan blooming. Kelimpahan mikroalga tergolong tinggi, yaitu sebesar 321.971 sel/gr berat basah plastik PET dengan Achnanthes sebagai genus yang memperoleh total kelimpahan tertinggi, yaitu 100.850 sel/gr. Hubungan antara kelimpahan dan faktor lingkungan diuji menggunakan korelasi Pearson. Faktor intensitas cahaya dan kecerahan berkorelasi positif.

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Epiplastic microalgae are known to have the potential to cause Harmful Algal Blooms (HAB) making plastic as a vector for transporting harmful microalgae. The issue of waste accumulation has been reported at Marina Ancol Beach. This study aims to analyze epiplastic microalgae on Polyethylene Terephthalate (PET) plastic waste beverage packaging based on cell abundance and environmental factors. The research was conducted by collecting a total of 9 samples of plastic waste at three sampling points, followed by the separation of microalgae using a combination of the squeeze method and scraping. The water samples were separated from the substrate, the wet weight of the plastic waste was measured, the samples were filtered using a graded sieve, and observation was done under a light microscope using a cover glass. A total of 15 genera of epiplastic microalgae were found from the class Bacillariophyceae, Dinophyceae, and Cyanophyceae, which have the potential to cause HAB. Pseudo-nitzschia, Nitzschia, Prorocentrum, Lyngbya, and Trichodesmium are genera that are potentially toxic. Prorocentrum, Blixaea, Tripos, and Trichodesmium are known to have caused blooming. The abundance of microalgae was 321,971 cells/g wet weight of PET plastic and relatively high with Achnanthes as the genus with the highest total abundance, which is 100,850 cells/g. The relationship between abundance and environmental factors was tested using Pearson correlation. The factors of light intensity and water clarity showed a positive correlation.