

Analisis perbandingan logam berat Pb, Cd dan Zn pada komponen organik dan anorganik spons stylissa massa di pulau Pramuka, Kepulauan Seribu, Jakarta. = Comparative Analysis of Pb and Zn Heavy Metals on Organic and Inorganic Components of Stylissa massa Sponge in Pramuka Island, Seribu Islands, Jakarta

Tika Damayanti, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20516445&lokasi=lokal>

Abstrak

Penelitian ini bertujuan untuk mengetahui perbedaan kandungan logam berat Pb, Cd, dan Zn pada komponen organik dan anorganik spons Stylissa massa di Pulau Pramuka, Kepulauan Seribu, Jakarta. Penelitian ini dilakukan pada bulan Juni 2020 sampai dengan Desember 2020. Pengambilan sampel dilakukan di 3 stasiun dengan 2 kali pengulangan. Jumlah sampel yang diperoleh dalam penelitian ini yaitu sebanyak 6 sampel spons Stylissa massa, 6 sampel air, 6 sampel sedimen, dan parameter lingkungan seperti pH, DO, suhu, salinitas, dan kedalaman. Analisis logam berat Pb, Cd, dan Zn dilakukan dengan menggunakan Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Hasil analisis yang didapatkan menunjukkan bahwa kandungan logam berat Pb, Cd, dan Zn pada spons Stylissa massa di ketiga stasiun penelitian yang tertinggi hingga terendah yaitu logam berat Zn sebesar 91.698,07 ppb, Pb sebesar 19.185,40 ppb, dan Cd sebesar 716,45 ppb. Selain itu, besaran kandungan logam berat Pb, Cd, dan Zn pada komponen organik spons Stylissa massa di ketiga stasiun secara berurutan yaitu 554,11 ppb–1.066,57 ppb, 134,96 ppb–258,43 ppb, dan 21.839,69 ppb–27.919,51 ppb. Sementara itu, kandungan logam berat Pb, Cd, dan Zn pada komponen anorganik spons Stylissa massa di ketiga stasiun secara berurutan yaitu 2.004,16 ppb–4.891,18 ppb, 50,62 ppb–64,87 ppb, dan 5.006,92 ppb–8.154,12 ppb. Berdasarkan hasil Uji Mann Whitney, terdapat perbedaan kandungan logam berat pada komponen organik dan anorganik dalam menyerap logam berat Pb, Cd, dan Zn dimana komponen organik memiliki kemampuan untuk menyerap logam berat lebih tinggi jika dibandingkan dengan komponen anorganik. Hal ini disebabkan komponen organik mendominasi struktur tubuh spons Stylissa massa sedangkan pada komponen anorganik hanya membentuk kerangka dari spons Stylissa massa.

.....This study aims to determine the differences in the heavy metal content of Pb, Cd, and Zn in the organic and inorganic components of the Stylissa massa sponge in Pramuka Island, Kepulauan Seribu, Jakarta. This research was conducted from June 2020 to December 2020. Sampling was conducted at 3 stations with 2 repetitions. The number of samples obtained in this study were 6 samples of Stylissa massa sponge, 6 water samples, 6 sediment samples, and environmental parameters such as pH, DO, temperature, salinity, and depth. Analysis of heavy metals Pb, Cd, and Zn was performed using Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The results of the analysis obtained showed that the highest to lowest content of heavy metals Pb, Cd, and Zn in the Stylissa massa sponge in the 3 research stations were heavy metal Zn was 91,698.07 ppb, Pb was 19,185.40 ppb, and Cd was 716.45 ppb. In addition, the amount of heavy metal content Pb, Cd, and Zn in the organic components of the Stylissa massa sponge at the 3 stations, respectively, were 554.11 ppb-1,066.57 ppb, 134.96 ppb-258.43 ppb, and 21,839.69 ppb. -27,919.51 ppb. Meanwhile, the heavy metal content of Pb, Cd, and Zn in the inorganic components of the Stylissa massa sponge at the 3 stations were 2,004.16 ppb – 4,891.18 ppb, 50.62 ppb – 64.87 ppb, and 5,006.92 ppb–

8,154.12 ppb. Based on the results of the Mann Whitney Test, there are differences in the content of heavy metals in organic and inorganic components in absorbing heavy metals Pb, Cd, and Zn where organic components have the ability to absorb heavy metals higher than inorganic components. This is because the organic components dominate the body structure of the *Stylissa massa* sponge whereas the inorganic components only form the skeleton of the *Stylissa massa* sponge.