

# Analisis logam berat Pb, Cd, dan Zn pada materi organik dan anorganik spons *Sphaciospongia vagabunda* di Pulau Pramuka, Kepulauan Seribu, Jakarta = Analysis of heavy metal Pb, Cd, and Zn on organic and inorganic materials of sponge *Sphaciospongia vagabunda* in Pramuka Island, Seribu Islands, Jakarta.

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## Abstrak

Telah dilakukan penelitian mengenai analisis logam berat Pb, Cd, dan Zn pada materi organik dan anorganik spons *Sphaciospongia vagabunda* di Pulau Pramuka, Kepulauan Seribu, Jakarta. Penelitian bertujuan untuk menganalisa kandungan logam berat Pb, Cd, dan Zn pada spons *Sphaciospongia vagabunda* dan menganalisa perbandingan kandungan logam berat Pb, Cd, dan Zn yang terdapat pada materi organik dan anorganik spons di Pulau Pramuka, Kepulauan Seribu, Jakarta. Pengambilan sampel dilakukan pada bulan Juni 2020 selama 3 hari. Metode yang digunakan yaitu metode jelajah bebas dengan mengambil sampel spons, air, dan sedimen dari 3 stasiun, dengan 3 ulangan untuk masing-masing sampel di setiap stasiun. Analisis logam berat dilakukan dengan menggunakan Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Hasil pengamatan menunjukkan bahwa dari ketiga stasiun, logam berat Pb, Cd, dan Zn pada spons *Sphaciospongia vagabunda* yang paling tinggi terdapat di Stasiun 1, dimana logam berat yang paling banyak ditemukan pada spons *Sphaciospongia vagabunda* adalah logam Zn dengan kisaran konsentrasi antara 113,59 ppm—311,41 ppm. Materi organik spons *Sphaciospongia vagabunda* mampu mengakumulasi logam Pb, Cd, dan Zn berturut-turut sebesar 0,28 ppm—1,02 ppm, 1,54 ppm—8,65 ppm, dan 87,22 ppm—144,82 ppm, sementara materi anorganik spons *Sphaciospongia vagabunda* mampu mengakumulasi logam Pb, Cd, dan Zn berturut-turut sebesar 3,36 ppm—4,22 ppm, 0,47 ppm—2,54 ppm, dan 26,36 ppm—166,59 ppm. Berdasarkan Uji Mann Whitney, kandungan logam berat Pb, Cd, dan Zn pada materi organik dan anorganik spons *Sphaciospongia vagabunda* memiliki perbedaan yang nyata dimana materi organik pada spons *Sphaciospongia vagabunda* memiliki kecenderungan dalam mengakumulasi logam berat lebih besar dibandingkan dengan materi anorganiknya.

.....Research about analysis of heavy metal Pb, Cd, and Zn on organic and inorganic materials of *Sphaciospongia vagabunda* in Pramuka Island, Seribu Islands, Jakarta has been conducted. The aim of this study was to analyze the heavy metal content of Pb, Cd, and Zn in *Sphaciospongia vagabunda* and to analyze the comparison of heavy metal content of Pb, Cd, and Zn in organic and inorganic of the sponge in Pramuka Island, Seribu Islands, Jakarta. Sample collection was conducted in June 2020 for 3 days. The method used was the exploration method by taking samples of sponge, water, and sediment from 3 stations, which 3 replicates of respective were taken from each station. Heavy metal analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP MS). The results showed that of the three stations, heavy metals Pb, Cd, and Zn in the *Sphaciospongia vagabunda* were the highest at Station 1, where the most heavy metal found in *Sphaciospongia vagabunda* was Zn with a concentration range between 113,59 ppm—311,41 ppm. The organic material of *Sphaciospongia vagabunda* was able to accumulate Pb, Cd, and Zn respectively 0,28 ppm—1,02 ppm, 1,54 ppm—8,65 ppm, and 87,22 ppm—144,82 ppm, meanwhile the inorganic material was able to accumulate Pb, Cd, and Zn respectively 3,36 ppm—4,22 ppm, 0,47

ppm—2,54 ppm, and 26,36 ppm—166,59 ppm. Based on the Mann Whitney test, the content of heavy metals Pb, Cd, and Zn in the organic and inorganic material of *Spherospongia vagabunda* has a significant difference, where the organic material in *Spherospongia vagabunda* has a tendency to accumulate heavy metals greater than the inorganic material.