

PENJERAPAN LOGAM BERAT TIMBAL (Pb) DAN KADMIUM (Cd) DALAM SAMPEL AIR MENGGUNAKAN TANGKAI DAUN ENCENG GONDOK KERING (*Eichhornia crassipes* (Mart.) Solms.)

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Abstract

As an effort to develop an alternative design to eliminate heavy metals from contaminated water with less costly and environment friendly material, adsorption activity of Water Hyacinth (*Eichhornia crassipes* (Mart.) Solms.) stem towards Lead (Pb) and Cadmium (Cd) in water was studied. The source of this plants was from Jalan Arief Rahman Hakim (in front of the University of Hang Tuah), Surabaya. The stems of Water Hyacinth were first air dried, then were cut to about 5 and 10 cm long. In this experiment Pb and Cd solutions at concentrations of 5; 10; 20; 40; 80; 150; 300; 500; and 1000 mg/L were used as the samples. The pH of the solutions were adjusted to 4 – 5. The adsorption activity of Water Hyacinth stem towards Pb and Cd were calculated by means of Langmuir adsorption equation. It can be concluded that the adsorption activity of 1 cm long water hyacinth stem towards Cd and Pb was 0.0774 and 0.0420, while the ones of 5 cm long was 0.1345 and 0.0731, as for those of 10 cm long was 0.0894 and 0.0912. It can be shown that dried Water Hyacinth stem adsorbed Pb better than Cd.

Key words: heavy metals Pb and Cd, dried stem Water Hyacinth, adsorptivity Langmuir equation.

PENDAHULUAN

Dalam majalah Tempo (1999) dilaporkan bahwa di sepanjang Kali Surabaya terdapat 150 industri/pabrik yang dibangun sejak tahun 1970. Industri-industri tersebut kemudian membuang limbahnya ke sungai. Pada tahun 1982 didapati banyak ikan yang mati terapung disepanjang sungai, dan didapati adanya logam Hg, Cu dan Cd.

Pada tahun 1996 dilakukan lagi penelitian yang sama, dan kondisinya ternyata tidak bertambah baik, sebaliknya kandungan Cd justru meningkat hampir 10 kalinya.

Pada tahun 1981, Ketua Pusat Studi Lingkungan Universitas Airlangga melaporkan bahwa ikan yang terdapat di Kali Surabaya ternyata mengandung logam berat antara