ABSTRAK

POTENSI TANAMAN FITOREMEDIASI MERKURI DI SEMPADAN SUNGAI WAY RATAI DESA BUNUT SEBERANG KECAMATAN WAY RATAI KABUPATEN PESAWARAN LAMPUNG

Oleh

INDAH ELYANTI

Pertambangan Emas Skala Kecil (PESK) di Desa Bunut Seberang Kecamatan Way Ratai Kabupaten Pesawaran Lampung saat ini terdapat 45 titik. Proses pengolahan emas dengan teknik amalgamisasi menggunakan merkuri untuk mendapatkan bijih emasnya. Limbah lumpur/tailing mengandung merkuri ditampung dalam kolam selanjutnya dibuang ke sempadan sungai sehingga sangat berbahaya karena dapat mencemari air, tanah dan biota sungai. Tujuan penelitian ini adalah menetapkan pengaruh merkuri pada tanah terhadap keanekaragaman tanaman, menetapkan pengaruh jarak lokasi dari sumber pencemar terhadap kadar merkuri pada tanah, dan mengidentifikasi potensi tanaman fitoremidiasi merkuri serta mengetahui serapan merkuri pada tanaman konsumsi.

Metode pengambilan sampel *purposive sampling*, teknik sampling tumbuhan metode garis berpetak, ukuran petak 20m x 20m untuk analisis fase pohon, 10m x 10m fase tiang, 5m x 5m fase pancang dan 2m x 2m fase semai dan tumbuhan bawah. Sampel tanah diambil pada tiap plot 3x pengulangan. Sampel buah yang diambil adalah Kakao (*Theobroma cacao)*, Pepaya (*Carica papaya*) dan Pisang (*Musa acuminata)*. Parameter yang diamati adalah frekuensi, dominansi, shannon indek, indek nilai penting, kadar merkuri pada tanah, tekstur tanah, dan kadar merkuri pada buah.

Hasil analisis menemukan tanaman Kirinyuh (*Chromolaena odorata),* Kangkung rambat *(Ipomoea lacunosa),* dan Putri malu *(Mimosa pudica)* berpotensi sebagai tanaman fitoremediasi merkuri. Indek keanekaragaman tanaman dipengaruhi oleh kadar merkuri pada tanah sebesar 71,7% sedangkan 28,3% faktor lainnya. Kadar merkuri pada tanah dipengaruhi oleh jarak lokasi dari PESK sebesar 85,9% sedangkan 14,1% adalah faktor lainnya. Tidak terdapat merkuri pada buah yang dianalisis karena ada kemugkinan merkuri terakumulasi pada jaringan yang lain.

Kata kunci : tailing; merkuri; fitoremediasi; emas.

ABSTRACT

POTENTIAL PHYTOREMEDIATION OF MERCURY PLANTS ON THE WAY RATAI RIVER BORDER, BUNUT VILLAGE ACROSS WAY RATAI DISTRICT, PESAWARAN LAMPUNG REGENCY

By

INDAH ELYANTI

There are currently 45 small-scale gold mines (SGM) in Bunut Seberang Village, Way Ratai District, Pesawaran Regency, Lampung. The processing gold with amalgamation technique uses mercury to get the gold ore. Mud/tailings waste containing mercury is stored in ponds and then disposed of to riverbanks so it is very dangerous because it can contaminate water, soil and river biota. The purpose of this study was to determine the effect of mercury on the soil on plant diversity, determine the effect of location distance from the pollutant source on mercury levels in the soil, and identify the potential for phytoremediation of mercury plants and determine the absorption of mercury in consumption plants.

The sampling method was purposive sampling, the plant sampling technique was the plotted line method, the plot size was 20m x 20m for tree phase analysis, 10m x 10m pole phase, 5m x 5m sapling phase and 2m x 2m seedling and understorey phase. Soil samples were taken in each plot 3 times repetition. Fruit samples taken were *Theobroma cacao*, *Carica papaya* and *Musa acuminata*. Parameters observed were frequency, dominance, shannon index, significant value index, mercury content in soil, soil texture, and mercury content in fruit.

The results of the analysis found that *Chromolaena odorata*, *Ipomoea lacunosa* and *Mimosa pudica* have potential as mercury phytoremediation plants. The plant diversity index was influenced by mercury levels in the soil by 71.7% while 28.3% by other factors. Mercury levels in the soil are influenced by the distance from the SGM location by 85.9% while 14.1% is another factor. There was no mercury in the analyzed fruit because it was possible that mercury had accumulated in other tissues.

Keywords: tailings; mercury; phytoremediation; gold