

INTISARI

Penelitian ini bertujuan untuk mengetahui potensi serta mekanisme fitoremediasi oleh tanaman lili paris dan tanaman bunga marigold didukung dengan penambahan amelioran. Penelitian ini menggunakan Rancangan Acak Lengkap Faktorial dengan 2 faktor, faktor pertama tanaman (lili paris dan marigold) dan faktor kedua amelioran (kontrol, pupuk kandang sapi 60 ton/ha, arang sekam 24 ton/ha, dan kombinasi pupuk kandang sapi 60 ton/ha + arang sekam 24 ton/ha). Total jumlah perlakuan yaitu 8 perlakuan dengan 3 ulangan. Penelitian ini menganalisis tailing emas setelah inkubasi selama 2 minggu (pH H₂O, pH KCl, C-organik tailing, KPK, kation tersedia (Ca, Mg, Na, K), P tersedia, N total, kadar Hg tersedia dan total tailing), tailing setelah panen dengan masa penanaman 60 hari (C-organik, kadar Hg tersedia dan total tailing), dan tanaman (berat basah tanaman, berat kering tanaman, tinggi tanaman, jumlah daun tanaman, kadar Hg dan serapan Hg jaringan, *Bioconcentration Factor* (BCF), *Translocation Factor* (TF), *Fitoremediation* (FTD)). Analisis data dilakukan dengan uji ANOVA 5% dilanjutkan dengan uji tindak lanjut DMRT dan uji korelasi. Hasil menunjukkan bahwa pupuk kandang sapi dan arang sekam meningkatkan pH H₂O, pH KCl, kation tersedia, P Tersedia, KPK, N Total dan menurunkan ketersediaan Hg. Untuk tanaman, pupuk kandang sapi dan arang sekam mengurangi kandungan dan serapan Hg jaringan. Tanaman lili paris (*Chlorophytum comosum*) dan tanaman marigold (*Tagetes erecta* L.) termasuk tanaman *excluder* dengan nilai BCF 0,076-0,540. Tanaman lili paris memiliki mekanisme fitoekstraksi dengan nilai TF 42,24-128,8, sedangkan pada bunga marigold memiliki mekanisme fitostabilisasi dengan nilai TF 0,018-0,222. Potensi fitoremediasi terbesar ada pada tanaman marigold perlakuan kontrol dengan nilai FTD 0,491. Perlakuan dengan hasil optimal dan dapat direkomendasikan untuk mengurangi ketersediaan Hg yaitu perlakuan tanaman marigold yang dikombinasikan dengan pupuk kandang sapi 60 ton/ha ditambah arang sekam 24 to/ha dengan penurunan mencapai 20,63% dan serapan Hg yaitu 0,136 mg.

Kata kunci : *Fitoremediasi, fitoekstraksi, fitostabilisasi, excluder*

Abstract

This research aims to determine the potential and mechanism of phytoremediation by spider plants and marigold flowers supported by the addition of ameliorant. This research used a Completely Randomized Factorial Design with 2 factors, the first factor was plants (paris lilies and marigolds) and the second factor was ameliorant (control, cow manure 60 tons/ha, husk charcoal 24 tons/ha, and a combination of cow manure 60 tons/ha + husk charcoal 24 tons/ha). The total number of treatments was 8 treatments with 3 replications. This study analyzed gold tailings after incubation for 2 weeks (pH H₂O, pH KCl, C-organic tailings, KPK, available cations (Ca, Mg, Na, K), available P, total N, available Hg content and total tailings), tailings after harvest with a planting period of 60 days (C-organic, available Hg content and total tailings), and plants (plant wet weight, plant dry weight, plant height, number of plant leaves, Hg content and tissue Hg uptake, Bioconcentration Factor (BCF), Translocation Factor (TF), Phytoremediation (FTD)). Data analysis was carried out using the 5% ANOVA test followed by the DMRT follow-up test and correlation test. The results showed that cow manure and husk charcoal increased H₂O pH, KCl pH, available cations, available P, COC, Total N and reduced Hg availability. For plants, cow manure and husk charcoal reduce tissue Hg content and uptake. Paris lilies (*Chlorophytum comosum*) and marigold plants (*Tagetes erecta* L.) are excluder plants with BCF values of 0.076-0.540. Paris lilies have a phytoextraction mechanism with a TF value of 42.24-128.8, while marigold flowers have a phytostabilization mechanism with a TF value of 0.018-0.222. The greatest phytoremediation potential was in control treated marigold plants with an FTD value of 0.491. The treatment with optimal results and which can be recommended to reduce the availability of Hg is the treatment of marigold plants combined with 60 tons/ha of cow manure plus 24 tons/ha of husk charcoal with a reduction of 20.63% and uptake of Hg is 0.136 mg.

Keywords: *Phytoremediation, phytoextraction, phytostabilization, excluder*