

ANALISIS PERUBAHAN KESUBURAN TANAH MARGINAL DI LAHAN BEKAS TAMBANG TIMAH AKIBAT AMELIORAN TANAH

INTISARI

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Kabupaten Bangka merupakan salah satu wilayah di Indonesia yang mengalami kerusakan lingkungan paling tinggi akibat adanya kegiatan pertambangan timah. Tanah di lahan bekas tambang timah memiliki kesuburan yang buruk dan tercemar logam berat sehingga tidak dapat mendukung kegiatan pertanian. Amelioran tanah merupakan bahan yang digunakan untuk memperbaiki kesuburan tanah. Penelitian ini bertujuan untuk menganalisis perubahan kesuburan tanah lahan bekas tambang (marginal) melalui tingkat kandungan logam berat, keasaman tanah (pH), daya hantar listrik (EC), dan karbon organik terlarut (DOC) setelah diberi amelioran. Terdapat lima jenis amelioran yang digunakan pada penelitian ini (kapur, zeolit, *biochar*, kompos, dan campuran kapur-kompos). Percobaan dilakukan dengan rancangan acak lengkap. Sampel yang telah dicampur dengan amelioran diinkubasi selama seminggu dan diuji kandungan logam berat, pH, EC, dan DOC. Hasil pengujian dianalisis dengan ANOVA satu arah dan Uji Tukey untuk mengetahui perlakuan yang memberi pengaruh yang berbeda nyata. Hasil penelitian menunjukkan bahwa kandungan logam berat yang terdeteksi pada sampel berada di bawah nilai ambang batas menurut *World Health Organization* (WHO) dan *European Commission on Environment* (EU). Penambahan amelioran tanah terbukti secara signifikan dapat memperbaiki nilai pH, EC, dan DOC tanah dari lahan bekas tambang timah. Sampel yang ditambahkan kompos atau campuran kapur-kompos memberikan nilai yang paling signifikan dalam memperbaiki kesuburan tanah.

Kata kunci: tambang timah, amelioran tanah, logam berat, pH, daya hantar listrik, karbon organik terlarut.

ANALYSIS OF CHANGES IN MARGINAL SOIL FERTILITY OF EX-TIN MINING LAND DUE TO SOIL AMELIORANTS

ABSTRACT

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Bangka regency is one of the regions in Indonesia which encounter the highest environmental damage due to tin mining activities. Soil from ex-tin mining area has poor fertility and contaminated by heavy metals, thus it cannot support agricultural activities. Soil ameliorant is an ingredient used to improve soil fertility. This study aimed to analyze the changes in soil fertility of ex-tin mining land (marginal) through heavy metals content, soil acidity (pH), electrical conductivity (EC), and dissolved organic carbon (DOC) after ameliorants were added. There are five types of ameliorants used in this study (lime, zeolite, biochar, compost, and lime-compost mixture). This experiment was conducted by completely randomized design. Samples mixed with ameliorant were incubated for a week. Heavy metal content, pH, EC, and DOC were measured after incubations. The result was analyzed by one-way ANOVA and Tukey Test to find out which treatments that give a significantly different effect. The result of the study shows that detected heavy metals content in the samples are below the threshold value according to World Health Organization (WHO) and European Commission on Environment (EU). The addition of soil ameliorants were proven significantly could improve pH, EC, and DOC of soil in ex-tin mining land. Compost or lime-compost mixture treatment was shown to provide the most significant value in improving soil fertility.

Key words: tin mining, soil ameliorants, heavy metals, pH, electrical conductivity, dissolved organic carbon.