

**FITOREMEDIASI TANAH ALUVIAL TERCEMAR TIMBAL (Pb) DARI  
DAERAH TERDAMPAK INDUSTRI PELEBURAN LOGAM DI DESA  
PESAREAN KECAMATAN ADIWERNA KABUPATEN TEGAL  
MENGUNAKAN RUMPUT GAJAH DENGAN PENAMBAHAN BAHAN  
AMANDEMEN YANG BERBEDA**

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**ABSTRAK**

Paparan logam berat seperti Pb dapat menurunkan kualitas tanah. Pencemaran oleh Pb banyak terjadi di daerah industri berbasis logam, salah satunya di desa Pesarean Kabupaten Tegal Jawa Tengah. Fitoremediasi dapat menurunkan pencemaran Pb dalam tanah. Penelitian ini bertujuan untuk mengetahui pengaruh jenis amandemen dan tingkat pencemaran terhadap pertumbuhan rumput dan serapan Pb. Penelitian dilakukan di rumah kaca menggunakan polybag dengan metode Rancangan Acak Lengkap (RAL) 2 faktor. Faktor pertama yakni tingkat pencemaran tanah pada dua tingkatan yang berbeda. Faktor kedua yaitu penggunaan bahan amandemen berupa arang sekam padi (15,4 gr/3 kg), pupuk kandang (15,4 gr/3 kg), dan campuran keduanya (masing-masing 7,7 gr/3 kg) tanah. Data yang diperoleh diolah menggunakan *Analysis of Variance* (ANOVA) pada taraf 5% kontras ortogonal. Apabila terdapat beda nyata dilakukan uji DMRT. Parameter yang di analisis yaitu pH, kandungan Pb dalam jaringan tanaman dan tanah, serta pertumbuhan tanaman. Hasil penelitian menunjukkan bahwa pemberian bahan amandemen dan tingkat pencemaran yang berbeda berpengaruh nyata terhadap kadar Pb tersedia dalam tanah dan kadar Pb dalam jaringan tanaman. Aplikasi campuran arang sekam dan pupuk kandang kambing paling efektif dalam pertumbuhan tanaman dengan penyerapan kadar Pb tersedia tanah 0,78 mg/rumpun dibandingkan penggunaan arang sekam dan pupuk kandang secara independen.

**Kata kunci:** *tingkat pencemaran, serapan, arang sekam, pupuk kandang.*

**PHYTOREMEDIATION OF LEAD (Pb)–CONTAMINATED ALLUVIAL SOIL FROM METAL SMELTING–AFFECTED AREAS IN PESAREAN VILLAGE, ADIWERNA DISTRICT, TEGAL REGENCY USING NAPIER GRASS WITH DIFFERENT SOIL AMENDMENTS**

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**ABSTRACT**

Exposure to heavy metals such as lead (Pb) can degrade soil quality. Pb contamination commonly occurs in metal-based industrial areas, one of which is Pesarean Village, Tegal Regency, Central Java. Phytoremediation is a technique that can reduce Pb contamination in soil. This study aimed to determine the effects of amendment type and contamination level on grass growth and Pb uptake. The research was conducted in a greenhouse using polybags and employed a two-factor Completely Randomized Design (CRD). The first factor was the type of amendment: rice husk charcoal (15.4 g/3 kg soil), manure (15.4 g/3 kg soil), and a combination of both (7.7 g each/3 kg soil). The second factor was the level of soil contamination at two different levels and a control. The data were analyzed using Analysis of Variance (ANOVA) at the 5% significance level with orthogonal contrasts. When significant differences were found, Duncan's Multiple Range Test (DMRT) was applied. The parameters analyzed included soil pH, Pb content in plant tissues and soil, and plant growth. The results showed that the application of amendments had a significant effect on the concentration of available Pb in the soil and Pb content in plant tissues. The combined application of rice husk charcoal and goat manure was the most effective in reducing available soil Pb, with a Pb uptake value of 0.78, and was also able to enhance Napier grass growth compared to the independent application of rice husk charcoal or manure.

**Keywords :** *pollution level, absorption, rice husk charcoal, manure*