

**PENGARUH INOKULASI BAKTERI PENAMBAT NITROGEN DAN
PELARUT FOSFAT TERHADAP PERTUMBUHAN SENTRO
(*Centrosema pubescens*) PADA TANAH TAILING EMAS**

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ABSTRAK

Dampak negatif aktifitas pertambangan emas tanpa izin (PETI) terhadap kualitas tanah sangat berpengaruh besar terutama menyebabkan penurunan kualitas tanah berupa hilangnya lapisan tanah, tingginya tingkat *bulk density* (pemadatan tanah), kurangnya unsur hara penting, rendahnya pH, pencemaran oleh logam-logam berat pada lahan bekas tambang (*tailing*), serta penurunan populasi mikroba tanah. Untuk memperbaiki produktivitas lahan tambang dapat dilakukan dengan pemanfaatan bakteri *indigenus* spesifik penambat nitrogen dan pelarut fosfat agar unsur hara pada tanah *tailing* dapat tersedia bagi tanaman. Penelitian ini bertujuan untuk mengetahui pengaruh inokulasi bakteri penambat nitrogen dan pelarut fosfat secara tunggal dan campuran terhadap pertumbuhan sentro (*Centrosema pubescens*) yang ditanam pada tanah *tailing* emas serta mengetahui inokulan bakteri yang berpengaruh paling baik terhadap pertumbuhan sentro pada tanah *tailing* emas. Penelitian ini dilaksanakan di rumah plastik Fakultas Pertanian Universitas Siliwangi Tasikmalaya dengan ketinggian tempat 367 mdpl pada bulan Januari-Maret 2021. Penelitian menggunakan Rancangan Acak Kelompok (RAK) yang terdiri dari 4 perlakuan dan 7 ulangan. Satu plot perlakuan terdiri dari 4 polibag dan tiap polybag terdiri dari 3 tanaman sehingga jumlah tanaman yang digunakan sebanyak 336 tanaman. Perlakuan yang digunakan adalah i_0 = tanpa inokulasi isolat bakteri; i_1 = inokulasi bakteri penambat nitrogen ; i_2 = inokulasi bakteri pelarut fosfat ; i_3 = inokulasi campuran BPN dan BPF. Hasil penelitian menunjukkan bahwa inokulasi bakteri penambat nitrogen dan bakteri pelarut fosfat berpengaruh tidak nyata terhadap panjang tanaman, jumlah daun, luas daun, panjang akar, jumlah klorofil, bobot basah brangkas, bobot kering brangkas dan nisbah pupus akar sentro (*Centrosema pubescens*) pada tanah *tailing* emas.

Kata Kunci : *tailing*, bakteri penambat nitrogen, bakteri pelarut fosfat, sentro

THE EFFECT OF INOCULATION OF NITROGEN FIXING BACTERIA AND PHOSPHATE SOLUBILIZING BACTERIA ON THE GROWTH OF CENTRO (*Centrosema pubescens*) ON THE GOLD MINE TAILING SOIL

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ABSTRACT

The negative impact of unlicensed gold mining activities on soil quality has a very large effect, especially causing a decrease in soil quality in the form of loss of soil layer, high levels of bulk density (soil compaction), lack of essential nutrients, low pH, pollution by heavy metals in ex-mining land (tailings), as well as a decrease in soil microbial population. To improve the productivity of the mining area, it can be done by utilizing specific indigenous bacteria as nitrogen fixing and phosphate solvent so that the nutrients in the tailings soil can be available to plants. This study aims to determine the effect of single and mixed nitrogen fixing bacteria and phosphate solvent inoculation on the growth of centro (*Centrosema pubescens*) planted on gold tailings soil and to determine the bacterial inoculants that have the best effect on centro growth in gold tailings soil. This research was conducted in a plastic house, Faculty of Agriculture, Siliwangi University, Tasikmalaya with a height of 367 meters above sea level from January to March 2021. The study used a Randomized Block Design consisting of 4 treatments and 7 replications. One treatment plot consisted of 4 polybags and each polybag consisted of 3 plants so that the number of plants used was 336 plants. The treatments used were i0 = without bacterial isolate inoculation; i1 = inoculation of nitrogen fixing bacteria; i2 = inoculation of phosphate solvent bacteria; i3 = mixed inoculation of BPN and BPF. The results showed that the inoculation of nitrogen fixing bacteria and phosphate solubilizing bacteria had no significant effect on plant length, number of leaves, leaf area, root length, chlorophyll content, wet weight, dry weight and root shoot ratio of centro (*Centrosema pubescens*) on the gold mine *tailing* soil.

Keywords: Tailings, nitrogen fixing bacteria, phosphate solubilizing bacteria, centro