

**Pertumbuhan dan Aktivitas *Moraxella* sp. pada Tanah Tercemar
Limbah *Spent Bleaching Earth* (SBE)
Diperkaya Zeolit**

Ulma Nur Azila
16/393198/BI/09618

INTISARI

Spent bleaching earth (SBE) merupakan limbah padat dari hasil pemrosesan CPO (*Crude Palm Oil*). SBE mengandung residu minyak yang dapat menimbulkan pencemaran tanah dan kerusakan lingkungan. Bioremediasi merupakan metode yang dinilai efektif untuk menanggulangi pencemaran lingkungan akibat limbah SBE. Zeolit telah banyak dimanfaatkan dalam industri petrokimia, pengolahan limbah beracun, dan limbah radioaktif. Bioremediasi dengan bantuan zeolit dilakukan untuk mempercepat proses remediasi bahan pencemar yang dilakukan oleh bakteri. Penelitian ini bertujuan untuk (1) mengetahui pertumbuhan dan aktivitas *Moraxella* sp. dalam tanah tercemar limbah SBE, (2) mengetahui pengaruh zeolit terhadap pertumbuhan dan aktivitas *Moraxella* sp. dalam tanah tercemar limbah SBE. Kemampuan *Moraxella* sp. yang diperkaya zeolit dalam melakukan bioremediasi tanah tercemar limbah SBE dilihat dengan mengukur aktivitas enzimatisnya, jumlah sel bakteri, pH tanah, kadar air, kadar C-Organik, kadar N total, dan C/N ratio pada tanah tercemar limbah SBE. Berdasarkan pengukuran yang telah dilakukan, didapatkan hasil bahwa *Moraxella* sp. mampu tumbuh dengan memanfaatkan hidrokarbon SBE untuk pertumbuhannya, pertumbuhan sel bakteri dan nilai pH meningkat dengan adanya penambahan zeolit, pH tanah naik seiring waktu inkubasi dan penambahan zeolit, kadar air turun dan C/N ratio pada tanah turun seiring dengan bertambahnya waktu inkubasi dan dipercepat dengan adanya penambahan zeolit.

Kata kunci : bioremediasi, SBE, *Moraxella* sp., zeolit.

Growth and Activity of *Moraxella* sp. on Polluted Soil Spent Bleaching Earth (SBE) Enriched with Zeolites

Ulma Nur Azila
16/393198/BI/09618

ABSTRACT

Spent bleaching earth (SBE) is a solid waste from the processing of CPO (Crude Palm Oil). SBE contains oil residues that can cause soil pollution and environmental damage. Bioremediation is a method that considered effective to overcome environmental pollution due to SBE waste. Zeolite has been widely used in the petrochemical industry, toxic waste procession, and radioactive waste procession. Bioremediation that enriched by zeolite is carried out to speed up the remediation process of pollutants. Aims of this research are to (1) determine the growth and the activity of *Moraxella* sp. in soil contaminated by SBE waste, (2) knowing the effect of zeolite on the growth and the activity of *Moraxella* sp. in soil polluted by SBE waste. The ability of *Moraxella* sp. enriched by zeolite in bioremediating SBE-polluted soils can be seen by measuring the enzymatic activity, bacterial cell count, soil pH, moisture content, C-Organic content, total N content, and C / N ratio in SBE-polluted soils. Based on measurements that have been done, the results show that *Moraxella* sp. is able to grow by utilizing SBE hydrocarbons for its growth, bacterial cell growth and pH values increase due to the addition of zeolite, soil pH rises during the incubation time and zeolite addition, water content and C / N ratio in the soil decrease during the incubation time and is accelerated by the addition of zeolites.

Key words : bioremediation, SBE, *Moraxella* sp., zeolite.