

KORELASI KADAR Ca DAN Mg DALAM TANAH DENGAN PERFORMA TEGAKAN EUCALYPTUS HIBRIDA DI PETAK 18 KHDTK WANAGAMA

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INTISARI

KHDTK Wanagama dalam perkembangannya merupakan salah satu contoh hutan hasil rehabilitasi lahan kritis di Indonesia. Perkembangan kualitas tanah di KHDTK Wanagama mulai terjadi ketika ditanami vegetasi perintis hingga saat ini dapat ditanami berbagai jenis tanaman komersial. Jenis *Eucalyptus sp.* merupakan salah satu jenis yang dikembangkan di KHDTK Wanagama karena tergolong dalam *fast growing species*. Tanah Wanagama berkembang dari batuan induk karst atau *limestone* (CaCO_3) dengan kandungan kadar logam alkali (Ca dan Mg) yang cenderung tinggi. Penelitian dilakukan untuk mengetahui korelasi antara kadar Ca dan Mg dalam tanah dengan performa tegakan *Eucalyptus* hibrida.

Penelitian diawali dengan survei tegakan untuk menentukan sampel tegakan *Eucalyptus* hibrida. Selanjutnya dibuat Petak Ukur Permanen (PU) berbentuk lingkaran dengan jari-jari 17,8 m (luas 0,1 ha) sebanyak 9 PU secara *purposive*. Dilakukan pengukuran pertumbuhan pohon pada setiap PU dengan parameter tinggi dan diameter. Dari 9 PU tersebut, dilakukan stratifikasi berdasarkan tinggi dan diameter kedalam tiga kondisi pertumbuhan yaitu tegakan dengan performa baik, sedang, dan kurang berdasarkan volume tegakannya. Pengambilan sampel tanah dilakukan di 9 titik PU di kedalaman 0-10, 10-20, dan 20-30 cm. Selanjutnya sampel tanah dilakukan analisis NH_4OAc pH 7.0 kemudian dianalisis menggunakan *Atomic absorption spectrophotometry* (AAS) di laboratorium untuk mendapatkan kadar Ca dan Mg.

Didapatkan rerata kadar Ca tanah tertinggi berada pada tegakan dengan performa kurang (38,45-40,10 cmol/kg), diikuti tegakan dengan performa sedang (28,56-34,26 cmol/kg), dan baik (20,13-24,38 cmol/kg). Kadar Mg memiliki rerata lebih tinggi pada performa tegakan baik (2,44-3,41 cmol/kg) dibandingkan pada performa tegakan kurang (1,77-2,60 cmol/kg) dan sedang (1,54-2,69 cmol/kg). Korelasi kadar Ca tanah terhadap performa tegakan menunjukkan semakin tinggi kadar Ca tanah maka performa tegakan semakin menurun. Korelasi kadar Mg tanah terhadap performa tegakan menunjukkan semakin tinggi kadar Mg maka performa tegakan semakin meningkat. Korelasi kadar Ca terhadap kedalaman tanah menunjukkan semakin dalam tanah maka kadar Ca semakin tinggi. Korelasi kadar Mg terhadap kedalaman tanah yaitu semakin dalam tanah maka kadar Mg semakin rendah.

Kata Kunci : *Eucalyptus* Hibrida, Sifat Kimia Tanah, Kadar Ca, Kadar Mg

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CORRELATION BETWEEN SOIL Ca AND Mg LEVELS WITH PERFORMANCE OF HYBRID EUCALYPTUS IN PLOT 18 KHDTK WANAGAMA

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ABSTRACT

KHDTK Wanagama in its evolution is one example of a forest resulting from critical land rehabilitation in Indonesia. The development of soil quality in the KHDTK Wanagama began to occur when pioneer vegetation was planted until now it can be planted with various types of commercial plants. *Eucalyptus sp.* is one of the species developed in the KHDTK Wanagama because it is classified as a fast growing species. Wanagama soil develops from karst or limestone (CaCO_3) parent rock with high levels of alkali metals (Ca and Mg). Research was conducted to determine the correlation between Ca and Mg levels in soil and the performance of Eucalyptus hybrid stands.

The research began with a stand survey to determine the sample of Eucalyptus hybrid stands. Furthermore, Measurement Plots (PU) were made in the form of a circle with a radius of 17.8 m (0.1 ha wide) as many as 9 PU purposively. Tree growth measurements were carried out on each PU with height and diameter parameters. From the 9 PU, stratification was carried out based on height and diameter into three growth conditions (good, medium and poor performance) based on stand volume. Soil sampling was conducted at 9 PU points at a depth of 0-10, 10-20, and 20-30 cm. Furthermore, soil samples were analyzed using NH_4OAc pH 7.0 and then analyzed using Atomic absorption spectrophotometry (AAS) in the laboratory to obtain Ca and Mg levels.

The highest average soil Ca levels were found in poorly performing stands (38.45-40.10 cmol/kg), followed by medium performing stands (28.56-34.26 cmol/kg), and good (20.13-24.38 cmol/kg). Mg levels were higher on average in good performance stands (2.44-3.41 cmol/kg) than in poor (1.77-2.60 cmol/kg) and medium (1.54-2.69 cmol/kg) performance stands. Correlation of soil Ca content to stand performance showed that the higher the soil Ca content, the lower the stand performance. Correlation of soil Mg content to stand performance showed that the higher the Mg content, the higher the stand performance. Correlation of soil Ca content to soil depth shows that the deeper the soil, the higher the Ca content. The correlation of Mg content to soil depth is that the deeper the soil, the lower the Mg content.

Keywords: Hybrid Eucalyptus, Soil Chemical Properties, Ca Content, Mg Content

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