

## INTISARI

Abaka merupakan tanaman penghasil serat alam asli Filipina. Salah satu unsur yang memiliki peran penting bagi pertumbuhan abaka yaitu Magnesium. Tujuan dari penelitian ini yaitu untuk mengetahui pengaruh variasi kadar Mg tersedia dalam tanah terhadap aktivitas fisiologi, pertumbuhan, dan hasil serat abaka. Penelitian dilaksanakan pada bulan Oktober 2022–Maret 2023 di tiga lokasi budidaya abaka yaitu Kecamatan Ngemplak, Pakem, dan Cangkringan, sedangkan pengujian sampel tanaman dan tanah dilakukan di Laboratorium Manajemen Produksi Tanaman dan Laboratorium Tanah, Fakultas Pertanian, Universitas Negeri Gadjah Mada. Penelitian ini menggunakan rancangan lingkungan tersarang. Variabel yang diamati yaitu karakteristik iklim mikro, sifat fisika dan kimia tanah, kandungan dan serapan Mg daun, aktivitas fisiologis, pertumbuhan abaka, serta hasil serat abaka. Data yang telah diperoleh selanjutnya dianalisis Kovarian (ANKOVA), jika terdapat beda nyata antar perlakuan dilanjutkan dengan uji Tukey  $\alpha$  5%. Hasil penelitian menunjukkan perbedaan kandungan Mg tersedia tanah akhir memberikan pengaruh yang berbeda nyata. Kandungan Mg tersedia tanah akhir di lokasi Ngemplak merupakan yang tertinggi yaitu senilai 7,878 mg/kg; disusul lokasi Pakem senilai 2,060 mg/kg; dan lokasi Cangkringan senilai 0,189 mg/kg. Kandungan Mg tersedia tanah akhir di Ngemplak yang tertinggi menyebabkan lebih tingginya kandungan dan serapan Mg daun abaka di lokasi tersebut. Kandungan dan serapan Mg daun abaka yang tinggi menyebabkan lebih tingginya kapasitas fisiologis, pertumbuhan dan hasil serat abaka yang ditanam di Ngemplak.

Kata kunci : abaka, magnesium, fisiologi, pertumbuhan, serat

## ABSTRACT

Abaca is a natural fiber producing plant native to the Philippines. One element that plays an important role in the growth of abaca is magnesium. The aim of this research is to determine the effect of variations in available Mg levels in the soil on the physiological activity, growth, and yield of abaca fiber. The research was carried out in October 2022-March 2023 in three abaca cultivation locations, Ngemplak, Pakem, and Cangkringan, while testing of plant and soil samples was carried out at the Crop Production Management Laboratory and Soil Laboratory, Faculty of Agriculture, Gadjah Mada State University. This research used nested design. The variables observed were microclimate characteristics, physical and chemical properties of the soil, leaf Mg content and uptake, physiological activity, abaca growth, and abaca fiber yield. The data that has been obtained is then analyzed for covariance (ANKOVA), if there is a significant difference between treatments, then proceed with the Tukey  $\alpha$  5% test. The results showed that differences in the available Mg content in the final soil had significantly different effects. The final soil available Mg content at the Ngemplak was the highest, worth 7,878 mg/kg; followed by Pakem worth 2,060 mg/kg; and the Cangkringan worth 0,189 mg/kg. The soil available Mg content in Ngemplak was the highest, not only causing the higher Mg content and uptake of abaca leaves at that location, but also causing the higher physiological capacity, growth and yield of abaca fiber grown in Ngemplak.

Key words: abaca, magnesium, physiology, growth, fiber