

**STOK KARBON TANAH PADA LAHAN TEGAKAN JATI  
DI KALURAHAN KATONGAN KAPANEWON NGLIPAR  
KABUPATEN GUNUNGKIDUL**

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**ABSTRAK**

Hutan tanaman jati merupakan hutan dengan potensi ekologis sebagai penyimpan cadangan karbon dalam waktu yang panjang. Sehingga, kemungkinan penyerapan dan penyimpanan karbon berjumlah cukup besar. Penelitian ini bertujuan untuk mengidentifikasi kandungan stok karbon organik pada tiga kedalaman tanah berbeda. Metode yang digunakan yaitu metode survei. Pengumpulan data dilakukan dengan *purposive sampling* pada empat lokasi berdasarkan perbedaan tahun tanam dengan dua ulangan pada setiap lokasi, yaitu 1999, 2003, 2004, 2005, dan satu lahan tanpa tanam yang tidak ditanami pada kedalaman 0-20 cm, 20-40 cm, dan 40-60 cm. Analisis statistik yang digunakan yaitu uji normalitas, *One Way ANOVA*, dan uji lanjut Bonferroni. Berdasarkan hasil analisis, pada kedalaman 0-20 cm nilai stok karbon organik 34-62 ton/ha, nilai karbon organik 2,04-2,77%, nilai BV 0,612-1,119 gr/cm<sup>3</sup>, nilai pH sedikit basa, nilai suhu 28-33°C, dan tekstur geluh, lempung hingga pasir. Pada kedalaman 20-40 cm nilai stok karbon organik 59-105 ton/ha, nilai karbon organik 2,03-2,87%, nilai BV 0,722-0,971 gr/cm<sup>3</sup>, nilai pH sedikit basa, nilai suhu 27-31°C, dan tekstur geluh, lempung hingga pasir. Pada kedalaman 40-60 cm nilai stok karbon organik 106-149 ton/ha, nilai karbon organik 1,93-2,86%, nilai BV 0,650-0,996 gr/cm<sup>3</sup>, nilai pH sedikit basa hingga cukup basa, nilai suhu 26-29°C, dan tekstur geluh, lempung hingga pasir. Hasil penelitian menunjukkan bahwa nilai stok karbon organik tertinggi berada pada kedalaman tanah 40-60 cm lahan jati tahun tanam 2003 dengan nilai 149 ton/ha, sedangkan nilai terendah terdapat pada kedalaman tanah 0-20 cm lahan jati tahun tanam 2004 dengan nilai 34 ton/ha.

**Kata Kunci** : Karbon Organik Tanah, Stok Karbon, Tanaman Jati, Kedalaman Tanah Berbeda

**SOIL CARBON STOCK IN TEAK PLANTATION  
AT KATONGAN VILLAGE NGLIPAR DISTRICT  
GUNUNGKIDUL REGENCY**

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**ABSTRACT**

Teak plantation forests represent forests with ecological potential as long-term carbon storage sites. Therefore, they have the potential for substantial carbon absorption and storage. This study aims to identify the organic carbon stock at three different soil depths. The method used was a survey approach. Data collection was carried out using purposive sampling at four locations based on differences in planting years, with two replicates at each location (1999, 2003, 2004, 2005), and one control plot that was not planted at depths of 0-20 cm, 20-40 cm, and 40-60 cm. The statistical analyses employed were normality tests, One Way ANOVA, and Bonferroni post-hoc tests. Based on the analysis results, at 0-20 cm depth, the organic carbon stock was 34-62 ton/ha, organic carbon content 2.04-2.77%, bulk density (BV) 0.612-1.119 g/cm<sup>3</sup>, slightly alkaline pH, temperature 28-33°C, and texture ranging from silty, clayey to sandy. At 20-40 cm depth, the organic carbon stock was 59-105 ton/ha, organic carbon content 2.03-2.87%, BV 0.722-0.971 g/cm<sup>3</sup>, slightly alkaline pH, temperature 27-31°C, and texture silty, clayey to sandy. At 40-60 cm depth, the organic carbon stock was 106-149 ton/ha, organic carbon content 1.93-2.86%, BV 0.650-0.996 g/cm<sup>3</sup>, pH slightly to moderately alkaline, temperature 26-29°C, and texture silty, clayey to sandy. The results show that the highest organic carbon stock value was found at 40-60 cm soil depth in the 2003 teak planting land with a value 149 ton/ha, while the lowest value was found at 0-20 cm soil depth in the 2004 teak planting land with a value 34 ton/ha.

**Keywords** : Soil Organic Carbon, Carbon Stock, Teak Plants, Different Soil Depths