ABSTRAK

KARAKTERISTIK PERTUMBUHAN DAN SIFAT FISIKA KAYU SENGON (*Falcataria falcata* (L.) Greuter & R. Rankin) DI HUTAN RAKYAT KABUPATEN GUNUNGKIDUL, YOGYAKARTA

Oleh :

Adam Albary[1)]
Agus Ngadianto, S.Hut., M.Sc., Ph.D.[2)]

Pengetahuan tentang karakteristik pertumbuhan dan sifat fisika kayu sangat penting untuk pemanfaatan kayu secara optimal. Kualitas kayu dipengaruhi oleh posisi kayu dalam batang, sehingga diperlukan analisis terkait variasi radialnya, terutama untuk kayu dari hutan rakyat. Penelitian ini bertujuan untuk mengkaji karakteristik pertumbuhan dan sifat fisika kayu berdasarkan variasi radial melalui pemodelan efek campuran linier (Model I) dan non linier logarithmic (Model II) pada tiga kategori kecepatan tumbuh kayu sengon (*Falcataria falcata* (L.) Greuter & R. Rankin) yang berasal dari hutan rakyat di Indonesia – *slow-growth, medium-growth,* dan *fast-growth.* Hasil penelitian menunjukkan bahwa diameter batang dan tinggi pohon sengon untuk kategori *medium-growth* dan *fast-growth* memiliki korelasi positif yang signifikan sehingga memiliki hubungan yang saling memengaruhi. Kayu sengon kategori *medium-growth* memiliki nilai kerapatan tertinggi, diikuti kategori *slow-growth dan fast-growth* dengan nilai hampir sama. Sementara itu, nilai kadar air tertinggi diperoleh pada sengon kategori *slow-growth*, diikuti kategori *medium-growth* dan *fast-growth* dengan nilai hampir sama. Kerapatan kering udara kayu sengon kategori *medium-growth* menunjukkan korelasi negatif yang signifikan dengan kadar air kering udara. Pada variasi radial sifat fisika kayu sengon pada berbagai kategori kecepatan tumbuh, Model I sesuai untuk variasi radial kerapatan kayu kategori *medium-growth* dan *fast-growth,* kadar air segar kategori *slow-growth* dan *fast-growth*, serta kadar air kering udara kategori *medium-growth*. Model I ini menunjukkan bahwa kerapatan kayu meningkat secara bertahap dari empulur hingga kulit kayu, sedangkan kadar air kayu meningkat atau menurun secara bertahap dari empulur hingga kulit kayu. Sementara itu, nilai variasi radial kerapatan kayu dan kadar air kering udara pada kayu sengon kategori *slow-growth*, nilai variasi kadar air segar pada kayu sengon kategori *medium-growth*, serta nilai variasi radial kadar air kering udara pada kayu sengon kategori *fast-growth* lebih cocok diterapkan dengan Model II yang menunjukkan bahwa nilai kerapatan kayu meningkat dari empulur dan kemudian menjadi hampir stabil kearah kulit kayu, sedangkan kadar air kayu meningkat atau menurun dari empulur dan kemudian menjadi hampir stabil kearah kulit kayu.

Kata Kunci : Hutan rakyat, karakteristik pertumbuhan, kadar air, kerapatan.

[1)] Mahasiswa Program Studi Sarjana Terapan Pengelolaan Hutan, DTHV, SV-UGM.
[2)]Dosen Pembimbing dari Program Studi Sarjana Terapan Pengelolaan Hutan, DTHV, SV-UGM.

ABSTRACT

GROWTH CHARACTERISTICS AND WOOD PHYSICAL PROPERTIES OF SENGON *(Falcataria falcata (L.) Greuter & R. Rankin) IN THE COMMUNITY FORESTS OF GUNUNGKIDUL REGENCY, YOGYAKARTA*

By :

Adam Albary[1)]
Agus Ngadianto, S.Hut., M.Sc., Ph.D.[2)]

Understanding the growth characteristics and wood physical properties is essential for optimal utilization of wood. Wood quality is influenced by its position within the trunk, so an analysis of its radial variation is needed, especially for wood from community forests. This study aims to examine the growth characteristics and physical properties of wood based on radial variation through linear (Model I) and non-linear logarithmic (Model II) mixed effects modeling on three growth rate categories of sengon wood (Falcataria falcata (L.) Greuter & R. Rankin) originating from community forests in Indonesia – slow-growth, medium-growth, and fast-growth. The results showed that the stem diameter and tree height of F. falcata for the medium-growth and fast-growth categories had a significant positive correlation, indicating a mutually influencing relationship. The medium-growth of F. falcata had the highest density value, followed by the slow-growth and fast-growth categories with almost similar value. Meanwhile, the highest moisture content value was obtained in the slow-growth category of F. falcata, followed by the medium-growth and fast-growth categories with almost similar values. The air-dry density of F. falcata for medium growth showed a significant negative correlation with air-dry moisture content. In the radial variation of physical properties of F. falcata in various growth rate categories, Model I was suitable for the radial variation of wood density in medium-growth and fast-growth categories, green moisture content in slow-growth and fast-growth categories, and air dry moisture content in medium-growth categories. This model shows that wood density increases gradually from pith to bark, while moisture content of wood increases or decreases gradually from pith to bark. Meanwhile, the radial variation of wood density and air-dry moisture content in slow growth of F. falcata, green moisture content variation in medium growth of F. falcata, and radial variation of air-dry moisture content in fast growth of F. falcata were more suitable to be applied with Model II, which shows that the value of wood density increases from pith and then becomes almost stable towards the bark, while moisture content increases or decreases from pith and then becomes almost stable towards the bark.

Keywords: *Community forests, growth characteristics, physical properties, moisture content, wood density*

[1)]Student of Applied Undergraduate Program in Forest Management, Department of Biotechnology and Veterinary, Vocational College, Universitas Gadjah Mada.
[2)]Supervisor of Applied Undergraduate Program in Forest Management, Department of Biotechnology and Veterinary, Vocational College, Universitas Gadjah Mada