

Heartwood formation and durability of the wood of plantation grown tree species of the central Amazon

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With regard to wood quality and economic aspects heartwood formation and durability of the wood are of main importance. In this study the heartwood formation and the durability of seven years old plantation grown *Swietenia macrophylla*, *Carapa guianensis*, *Cedrela odorata*, *Dipteryx odorata*, and *Hymenaea courbaril* was compared with wood from primary growth.

Heartwood formation was studied macroscopically in terms of heartwood percentage measured on stem discs and xylem samples collected by increment borers. The age for the induction of heartwood formation was estimated from increment measurements of juvenile and adult trees carried out from 1995 until 1999 in monthly intervals. Along the radius of the discs the water content, the mineral element content, the content of reserve carbohydrates (glucose, fructose, sucrose, stachyose, and raffinose) and the content of non-carbohydrate accessory compounds was studied continuously from cambium to pith.

The durability expressed in terms of mass loss and the attack of fungi and insects was studied in the field during an one year experimental period. 1080 wood samples (5 cm x 2 cm x 2 cm) were installed in a secondary and a primary forest (2.5 cm below and 2.5 cm above the soil level). Sample collection was carried out in two months intervals. The fungi and the insects observed in the wood samples were isolated in the laboratory and taxonomically identified.

The results are discussed with special regard to wood quality of plantation grown trees compared to primary growth.