

Tree Growth and Wood Quality of *Ceiba pentandra* (sumaúma) Grown of "Terra Firme" and "Várzea" Sites

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Ceiba pentandra (sumaúma) is one of the most important tree species for plywood production in the Amazon. Until today the strong demand of this species is exclusively satisfied from primary forests of "várzea sites", which leads to high exploration of this species in natural forests. As to counteract this tendency timber firms and research organizations installed experimental plantations (monocultures, misted cultures agroforestry systems) of *Ceiba pentandra* on terra firme and várzea sites.

In this study growth and wood quality of *Ceiba pentandra* grown in different plantations on terra firme and várzea sites were investigated.

Highest growth rates were found in fertilized agroforestry systems on terra firme sites (age: 5 year; $\phi = 44,0$ cm; height = 14,24 m) indicating a high nutrient demand of *Ceiba pentandra*. After 5 and 7 year respectively a high survival rate was found in agroforestry systems on terra firme sites and monoculture systems on várzea sites as well. No significant influence of the study site and the plantation system on the density of the wood was found.

Density variation within the stem was studied and a significant gradient was found from pith to bark following the subsequent regression equations:

Primary Forest (várzea): $Dens = 0,059453pos - 0,00312pos^2 + 0,00005pos^3$ ($Ra^2 = 92,31$ and $CV(\%) = 28,66$)

Monocultures (várzea): $Dens = 0,138978pos - 0,016981pos^2 + 0,000645pos^3$ ($Ra^2 = 93,63$ and $CV(\%) = 25,75$)

Agroforestry System (t. fir): $Dens = 0,11615pos - 0,011233pos^2 + 0,000323pos^3$ ($Ra^2 = 93,00$ and $CV(\%) = 26,98$)

Monocultures (terra firme): $Dens = 0,13900pos - 0,016822pos^2 + 0,000642pos^3$ ($Ra^2 = 93,82$ and $CV(\%) = 25,43$).

A comparison of plantation and natural grown trees indicated a slight increase of the anisotropy of the wood of plantation grown trees compared to natural growth.

Wood Anatomical and Technological Properties of Three Species of *Hymenaea L.* (JATOBÁ) on Plantation and Naturally Grown Trees

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Comparisons between north x south directions and DBH height x top position, of trees from three species of genus *Hymenaea* were made related to the mechanical, physical and anatomical properties. *Hymenaea courbaril* (seven years) and *Hymenaea* sp. (eighteen years) were collected in plantation and *Hymenaea intermedia* (no-determined) was collected from natural sites. Sample collection was carried out of EMBRAPA, EEST/INPA and MIL Madeira, respectively. There is no significant difference between north x south directions at DBH and between north x south at top. No significant difference between DBH x top was

found, as well. Significant difference was found between plantation grown trees of the same specie. The variation in a tree was higher in plantation grown trees than natural growth. We conclude that in spite of the plantation grown tree show tendency of adult wood characteristics, there is still a large variation of those characteristics, as inside as between trees of the same specie. The variation will decrease with the change from juvenile to adult growth of constituents elements of the wood. We suggest to do more studies not only with species of *Hymenaea* but with others woody Amazonian species, as wheel.