

Siriluk Sukjaroen 2014: Comparative Anatomy of Wood and its Charcoal in some Hardwood Species. Master of Science (Forestry), Major Field: Forest Products, Department of Forest Products. Thesis Advisor: Associate Professor Teera Veenin, Dr.Agr. 158 pages.

Study on anatomy of woods and their charcoal in hardwoods, 10 species of wood were *Leucaena leucocephala*, *Acacia auriculaeformis*, *Irvingia malayana*, *Rhizophora apiculata*, *Shorea obtusa*, *Tamarindus indica*, *Mangifera indica*, *Hevea brasiliensis*, *Eucalyptus camaldulensis* and *Shorea siamensis*. The purpose of this research was to study the comparative anatomy of woods and their charcoal and the influence of the charring temperature on anatomy. The charring temperature were 250, 400 and 600 degree Celsius in electric furnace. The anatomy of wood and charcoal were studied in the cross-section, tangential-section and radial-section by light microscope and charcoal by scanning electron microscope.

The results of the comparative anatomy of woods and charcoal in 10 species were shown that there was a little difference. Most of charcoal cells could be seen as same as normal wood, such as the arrangement of pores, intervessel pitting, perforation plates, arrangement of parenchymas, ray, fibers, deposits, tylose, gum vein and crystals in parenchymas and ray. The exception of some arrangement of parenchyma (narrow bands in *Irvingia malayana*, diffuse in *Shorea obtusa*, *Eucalyptus camaldulensis* and *Shorea siamensis*, diffuse in aggregates in *Shorea siamensis* and scanty paratracheal in *Rhizophora apiculata* and *Eucalyptus camaldulensis*) were unclear when the charring temperature were above 400 degree Celsius. Increasing charring temperature could not only lead to more shrinkage and cracks along the ray but also decrease specific gravity of charcoals. However, we can identify the type of wood from both charcoal and sound wood.

Student's signature

Thesis Advisor's signature