

Mean green moisture content in siricote wood was 123%. Basic and normal densities were classified as low, and the linear shrinkage were classified as high and very high in the tangential and radial directions, respectively, while the volumetric shrinkage was classified as medium. Lateral and transversal hardness were both classified as medium.

Keywords: Wood anatomy, Basic density, Shrinkage, Janka hardness, Xylem

PP176

Quality And Energetic Potential Of The Wood Of *Eucalyptus* Sp. Clones

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ABSTRACT: Wood is a very versatile material due to the variations of your intrinsic characteristics. Several use forms can be attributed to the wood that depending on your quality. Quality is a term that should be always associated to the use of the wood and it depends on your properties. In the studies of evaluation of the wood quality, they are usually certain the most important characteristics to have given use. This study aimed to evaluate the wood quality of *Eucalyptus* sp. clones to your bioenergy use. For this research four clones of *Eucalyptus* sp. were used. The clones were selected in a commercial planting with spacing 3.5 m x 2.5 m and 78 month years old, located in the State of Minas Gerais, Brazil. Wood characteristics as the basic density, elementary chemical analysis (CHN-O), extractive, Klason lignin (soluble, insoluble and total), ash content and calorific value (gross, inferior and net) were measurement. The used sampling was in obtained disks in five relative longitudinal positions (2%, 10%, 30%, 50% and 70%) of the commercial height of the tree, considered until a diameter of 5 cm. All the disks had about 2.5 cm of thickness. The chemical analyses and to gross calorific value was accomplished with a composed sample considering all the longitudinal positions. The results indicate that differentiates significant among the available genetic materials. All the clones present potential for bioenergy production. The clone 3281 presented higher ash content, lower basic density, lignin content and volumetric calorific value. The gross calorific value didn't differ significantly among the genetic materials.

Keywords: Bioenergy, Genetic Materials, Wood Quality

PP177

Technological study from *Matudaea trinervia* wood from Puebla State, Mexico

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In this study, we determined the anatomical characteristics, the mechanical and other physical properties, as well as the machining properties of quebracho (*Matudaea trinervia* Lundell) wood from Puebla State, central Mexico. Two trees 27 m high, with DBH of 65 cm and 55 cm were collected from Tatahuicapan, Puebla, and cut to 1.30 m-long logs for transportation. Macroscopic anatomical characteristic in the three typical planes (radial, tangential and transversal) were obtained from 7 x 15 x 1 cm wood specimens, while the microscopic anatomical characteristics were determined from microtomed sections and from macerated tissue, following standard methods of the Wood Anatomy Laboratory of Chapingo University. Lateral and transversal Janka hardness and the next physical properties were determined according to ASTM standards: green moisture content; green, normal and basic densities; and linear and volumetric shrinkage. Machining properties was evaluated according to ASTM Standard D-1666-87.

Quebracho wood shows pale pink sapwood, while the heartwood is solid pink. Interlocked grain, fine texture, and diffuse-porous were also found. Vessel elements are classified as small, short and very numerous, with scalariform perforation plate at both ends. Axial parenchyma is apotracheal diffuse, and scanty paratracheal. Rays are heterogeneous, mostly biseriate, with presence of a few uniseriate rays, and classified as extremely numerous, high, and moderately broad. Fibers have thick walls, and are medium in diameter, and long in length. Based on the Runkel Ratio, the quality index for pulp production was deemed as fair.

Mean green moisture content in quebracho wood was 86%. Basic density was classified as high, and the linear shrinkage were classified as high and very high in the radial and tangential directions, respectively, while the volumetric shrinkage was classified as high. Lateral and transversal hardness were both classified as very high.

As far as machining properties is concerned, planning of quebracho wood was found to be fair to good, sanding as excellent, boring as poor to fair, molding from very poor to fair, and turning as fair.

Keywords: Wood anatomy, Basic density, shrinkage, Janka hardness, machining properties

PP178

Influence of Particle Size and Blending Ratio on the Physical and Combustion Properties of Fuel Briquettes Produced from Wheat Offal

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This study focused on the production of fuel briquettes from wheat offal. The variables investigated are particle size and blending ratio. The wheat offal used was sourced from Maiduguri Flour Mill (MFM). The material was sieved into fine, medium and coarse particle sizes using 1mm and 2mm wire mesh. Each particle size was thoroughly mixed with gelatinous cassava starch in ratios; 90:10, 85:15, 80:20 and 75:25 by weight. The blended material was then hand-fed into a 3.11cm x 40.50cm cylindrical mould and compressed at a pressure of 10.76kg.cm⁻². In order to have enough briquettes for material testing, each production batch was replicated 10 times. The physi-



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