

## BIOMATERIAIS FUNCIONAIS A PARTIR DE PLANTAS DO CERRADO

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### Abstract

The Cerrado biome has more than two million square kilometers, that is 22% of the national area, it is home to 5% of the animal species of the plant, 30% of those exposed in Brazil, 32% of which are endemic. It has vital plant biodiversity, which have been affected by anthropic actions. With these contents, it is possible to cooperate with the sustainability of forest management practiced in the Cerrado. Research to increase the knowledge of xylems from the Cerrado can contribute to the precise management of the species. The objective, then, is to observe the quality of the vegetal tissue and the charcoal of three species of the biome in question (*Tachigali vulgaris*, *Myracrodruon urundeuva* and *Amburana cearensis*) for energy purposes, as well as to obtain the average microfibrillar angles through the techniques of polarized light microscopy and X-ray diffraction. Two structures per species will be sampled. The discs will be sectioned into four fillets, two of which will be used to determine the basic density, as recommended by NBR 11941 (ABNT, 2003). To carry out the chemical analyses, samples will be taken from the remaining disks, the physical, chemical and energetic analyzes of the wood will be carried out by longitudinal sampling position, to quantify the carbon (C) and hydrogen (H) contents, in relation to the mass dryness of wood, using a universal analyzer, the superior calorific value (PCS), on a dry mass basis, will be determined in a digital calorimeter. The carbonization of the plant tissue will be carried out in an electric stove, with a final temperature of 450 °C and a flame rate of 1.67 °C/min. Thus, it is verified which samples presented higher elemental density and PCS, as well as low volatile materials content, which are the apparent density values in kg/m<sup>3</sup>, the spoilage content in percentage and the fixed carbon and PCS content. The average microfibrillary angles will also be obtained through the techniques of polarized light microscopy and X-ray diffraction. And finally, based on the results obtained, which is the order of the best species evaluated.

**Keywords:** renewable energy; native species; energetic potential.

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