

Forest residues characterization of *Pinus sp.* and *Eucalyptus sp.* for use as renewable fuel

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In the several areas of knowledge, the demand for renewable materials, which ensure sustainability requirements, has been growing. The energy sector, for example, has sought alternative renewable energy to replace fossil fuels. In this context, the use of lignocellulosic materials, particularly industrial and forestry residues, has been shown to be a viable alternative. However, the energy characterization of the material is essential for its use as fuel. Thus, the aim of this work was to carry out the energy characterization of forest residues of *Pinus sp.* and *Eucalyptus sp.* These residues were coming from planted area from Inpe, in Cachoeira Paulista/SP. The characterization of the materials involved the analysis of moisture content, elemental analysis and gross calorific value (GCV), according to ASTM standards. Energy characterization was performed in the leaves, bark, branches and trunk, of both biomass studied. Values of the averages among the species were compared by analysis of variance. The magnitude of the differences between the species was verified by Tukey test. All statistical analyses were performed with a significance level of 5%. The carbon content and the GCV ranged between from the species studied, this occurs in all parts of the trees. GCV and carbon content in the trunk of *Pinus sp.* were of 18,738 J/g and 48.93 %, respectively. In the trunk of *Eucalyptus sp.*, this values were, respectively, 18,171 J/g and 47.01 %. In this study, the use of residues of *Pinus sp.*, as fuel, seems to be more appropriate, than the use of *Eucalyptus sp.*, this in terms of energy characterization.

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