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“CLEANER PRODUCTION INITIATIVES AND CHALLENGES FOR A SUSTAINABLE WORLD”

Effect of Extractive Removal on the Calorific Power of Wood Residues

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Abstract

In mechanical processing of wood, the generation of residues is an unavoidable factor. The use of wood residues has gained increasing importance due to the large amount generated and improper disposal, which causes serious environmental damage. Burning of such residues to energy generation is an increasingly usual practice. However, the wood residues hold substances that could be recovered before burning. These substances are the wood extractives, which may have many uses as natural dyes for fabrics, foods and cosmetics, as well as substances of interest to medicine. Thus, it is of great interest to study the effect of extractive removal on the calorific power of wood. In this work, the calorific power of four species of woods commonly used in sawmills (ipe, cedroarana, and jatoba) and residues of urban arborization (Brazil wood) were evaluated before and after extraction in hot water. In woods studied, the calorific power showed three patterns of behavior after removal of extractives soluble in hot water. For Brazil wood, the removal of extractives caused no significant change in calorific power, which suggests that there is no potential energy in these wood extractives. For cedroarana and jatoba, extractive removal led to a decrease in wood calorific power of 161.3 kcal/kg and 40.1 kcal/kg, respectively, which indicates that the extractives from these species have a positive energy potential. Finally, for ipe, the removal of extractives resulted in an increase in calorific power of wood (67.6 kcal/kg), which might encourage the recovery of extractives from wood residues before burning for energy generation.

Keywords: *calorific power, extractives, wood residues, recovery.*

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