

## Isolation and Chemical Characterization of Residual Lignin from Areca Nut Shells

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**Abstract :** Recent fuel-development strategies to reduce oil dependency, mitigate greenhouse gas emissions, and utilize domestic resources have generated interest in the search for alternative sources of fuel supplies. Bioenergy production from lignocellulosic biomass has a great potential. Cellulose, hemicellulose and Lignin are main constituent of woods or agrowaste. In all the industries there are always left over or waste products mainly lignin, due to the heterogeneous nature of wood and pulp fibers and the heterogeneity that exists between individual fibers, no method is currently available for the quantitative isolation of native or residual lignin without the risk of structural changes during the isolation. The potential benefits from finding alternative uses of lignin are extensive, and with a double effect. Lignin can be used to replace fossil-based raw materials in a wide range of products, from plastics to individual chemical products, activated carbon, motor fuels and carbon fibers. Furthermore, if there is a market for lignin for such value-added products, the mills will also have an additional economic incentive to take measures for higher energy efficiency. In this study residual lignin were isolated from areca nut shells by acid hydrolysis and were analyzed and characterized by Fourier Transform Infrared (FTIR), LCMS and complexity of its structure investigated by NMR.

**Keywords :** Areca nut, Lignin, wood, bioenergy

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