

### Extraction and Characterization of Lignin from Korea Native Miscanthus

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The aim of the present study was to investigate the effect of extraction conditions on the molecular structure of alkaline and organosolv lignins extracted from Korea native Miscanthus. The lignin fractions obtained were then characterized by EA, ICP-AES, TGA, GPC, FT-IR, NMR, Py-GC/MS, and sugar analysis. The structural characterization of lignin will be improving the understanding of complex lignocellulosic biomass pretreatment which is vital for the production of biofuels and phenolic compounds. Comparing the two pretreatment methods, it was found that Mn, Mw and polydispersity of the lignin extracted with ethanol solutions was lower than lignin extracted with alkaline solutions. Elemental composition of Lignins increased in carbon content, and the oxygen content, as expected, decreased. FTIR analysis of pretreated solid residues revealed reduction in p-hydroxyphenyl (H), guaiacyl (G) and syringyl (S) lignin, FTIR and p-NMR of these lignins showed S, H and G units. The lignin's physical and chemical behavior was seen different with respect to the extraction method used.