

## The Basic Pathways of Deep Chemical Transformation of Plant Raw Materials

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Modern papermaker technologies include reactions resulting in the destruction of lignocarbohydrate complex and allocation one of the components (cellulose or lignin). Low utilization ratio of biomass (up to 50%) and ecological problems caused by papermaker manufactures are stimulated development of new processes and technologies of chemical transformation of lignocarbohydrate materials (LCM).

The use of biomass of one-year and perennial plants without dividing into parts is based on the reactions of hydroxyl-containing compounds such as cellulose, lignin and hemicellulose.

Alkylation (carboxymethylation, benzylation, methylation); acylation (by acetic, maleic, phthalic and other anhydride of one and two-basic carboxylic acids); oxidation (oxidation cleavage of glycol groups with formation of carbonyl fragments and its chemical transformations); carbonylation and reactions with carbamide are studied on the Faculty of Organic Chemistry of Altay State University. Main results of studies of chemical transformations of LCM and its components are reported.

It was found that the deep chemical transformation of LCM without division it into components results in the formation of many valuable products. These products may have practical importance as reagents for the stabilization of chisel solutions, thermoplastic bindings for obtaining of ecologically pure plate materials, superficial-active substances for flotation, used in organic synthesis products and half-products and other.