

PP26. CHEMICAL AND ELEMENTS CONTENT OF HYDROLYSIS OF LIGNIN OF COTTONSEED HULLS

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The plant biopolymers lignin, cellulose and hemicellulose are the main components of the plant cell wall.

Natural lignin is a complex amorphous polymer with three-dimensional cross-linked structure. It is basically composed of three phenylpropanoid monomers namely guaiacyl, syringyl, and p-hydroxyphenyl subunits. Its content in the cells of agricultural plants, depending on the culture, is 17-24%. Hemicellulose is the main constituent of most agricultural crops.

By chemical and biotechnological methods, hydrolyzing agricultural plant residues more precisely hemicelluloses on an industrial scale into ethanol, furfural, xylitol, feed yeast, etc. are obtained.

We investigate the chemical and elemental composition of hydrolysis lignin (GL) of cottonseed hulls taken from the burials of the Andijan hydrolysis plant.

The general characteristics of the fractions less than 2 mm had the following composition: moisture - 9.1%, ash - 3.72%, extractives - 1.02%, easily hydrolysable polysaccharides 1.89%, difficultly hydrolysable polysaccharides 14.1%, Klason lignin - 79.3% .

The elemental composition of GL samples was determined using a Vario MACRO CHNS elemental analyzer. The method consisted in catalytic combustion of samples in a tube at a temperature of 1150°C in an oxygen atmosphere, reduction of oxides in a reduction tube at 850°C, separation of the resulting products on a chromatographic column with subsequent determination of the elements using a thermal conductivity detector (TCD), helium served as the carrier gas.

The content of C, N, H, S (wt.%) is calculated from the formed gases N₂, CO₂, H₂O and SO₂ using a TCD. The oxygen content was calculated from the difference between the mass of the sample and the content of C, H, N, and S.

The content of elements (%) in the sample: C - 61.63, H - 4.90, S - 0.88, N - 1.16, O - 31.43, a H/C ratio of 0.95 and an O/C ratio of 0.51.