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BIOETHANOL PRODUCTION POSSIBILITIES FROM HEMP

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The EU's commitments to decrease the emission of „green-house" gases, to increase the renewable energy share in the whole energy consumption and to increase the renewable energy share in electrical energy, all have raised bioenergy to the significant position as one of the main sources of renewable energy.

Since Hungary is poor in cheap, clean, high-quality domestic energy resources and more than 50% of energy consumption is satisfied by imports, only biomass can currently be considered as a significant source of renewable energy. Due to the climate of the country it is highly diversified in agriculture crop production and suitable for energy plant production.

Hemp, which has been applied in this research, is a traditionally cultivated plant species in our country. The main advantages of this plant are, that can be cultivated in the back-warding regions possessing weak arable land conditions with low energy and pesticide requirements. Sweet sorghum is already a well-known and studied plant for biofuel production, while hemp can be stated as a novelty from this view. Hemp is a rapid growing (100-120 days), weed suppressing plant, and easily can be fit into crop rotation system. Among the field crops it has the highest biomass production with 15-17 t/ha (14% moisture content), which can make it competitive with energy woods.

Since our group has a long term tradition of research on utilization of lignocellulosic materials, our experiments aimed to examine main steps (pretreatment, hydrolysis, fermentation) of the conversion of hemp to ethanol, which results will be presented.