MODERN ASPECTS OF BIOETHANOL PRODUCTION

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Introduction. Bioethanolis a bio fuel made through a biotechnological, sustainable process. Bioethanol is a form of renewable energy that can be produced from agricultural feedstocks. It can be made from very common crops such as wheat, corn, rye, millet, sugar cane, potato, and manioc. Nowadays bioethanol is often used as a component of ethanol motor fuel containing gasoline, and this fuel is called benzene. The content of ethyl alcohol in benzene is 5-10 vol.%. In EU countries, the use of ethanol as a component of motor fuel is mandatory. This direction of the use of renewable raw materials begins to develop in Ukraine.

Aim. In the world economy, bioethanol is increasingly used, a mixture obtained from the processing of renewable vegetable raw materials, which contains ethanol as the main component and is used for the production of biofuels. The purpose of the work is the analysis of the specifics of bioethanol production, for further research of the features of usage of grain raw materials and the development of a waste-free technology for the production of bioethanol in Ukraine.

Materials and methods. We used the descriptive research method: literary and Internet sources that are freely available were analyzed.

Results and discussion. Bioethanol is cheap and environment-friendly: E85 a fuel made from 85% bio ethanol, sold at three times cheaper at the pump stations, and gas emissions over the entire bio ethanol production cycle, the reduction is 70% for the gasoline manufacturing process, otherwise coming out of the car exhaust E85 already reduces carbon dioxide emissions by 5%.

Some other properties of this substance:

1. Bio ethanol is a fuel produced from plants; it does not require drilling and extraction of fossil resources like other types of gasoline.
2. It’s similar to gasoline, so its use does not require diesel engine modification.
3. Reduce emission that endangers health.
4. For agriculture, bio ethanol has benefits by recycling remains of the agricultural crop.

The negative points:

1. Lack of study and development of engines dedicated to working with bio fuels.
2. Cancellation of warranty by car manufacturers when using bio ethanol or bio fuels generally.
3. Not all Gas stations provide the E85.

It should be noted that all these points are avoidable in order to protect the environment, public health and give real opportunities to environmentally friendly energies. Bioethanol production includes three processes: pretreatment to separate hemicellulose and lignin from cellulose, hydrolysis of cellulose to obtain fermentable sugars and fermentation to convert sugars into ethanol, followed by distillation to separate and purify the ethanol.

Conclusion. The utilization of agricultural residues for bioethanol production is beneficial and has no impact on the environment, it cost cheap, regarding the simple process of fabrication compared by others. The use of bioethanol energy should be encouraged in particular, and to involve biotechnology more than ever in the fields of industrial technology to protect our planet for the sake of future generations.