

COMPOSITION AND PROPERTIES OF CONDENSATE OF LIQUID PYROLYSIS PRODUCTS OF WOOD WASTE

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Introduction. The liquid product of pyrolysis is a dark liquid, which subsequently separates into two phases after storage. Upper water and lower resinous. These phases have different properties and, during further processing, the separation of the pyrolysis liquid and high humidity are a problem. To remove acids and water, the pyrolysis liquid was subjected to vacuum distillation. During the distillation process, condensate is formed. This distillation product has the potential to be used as a biostimulating additive for plants [1, 2].

Materials and methods. The raw material for the pyrolysis liquid was birch chips. Pyrolysis was carried out at the FPP 02 installation. A laboratory rotary evaporator was used to carry out the distillation process. Distillation conditions: temperature – 80 ° C, pressure – 1.9 kPa. The chemical composition was determined using gas chromatography – mass spectrometry on the GCMS-QP2010 device of the Shimadzu company on the HP-1 MS column.

Results and discussion. The condensate yield was 54-56% of the pyrolysis liquid mass, humidity – 83-85%, pH-1.85. Analysis of the composition of the organic volatile part of the condensate showed the presence of a significant amount of acetic acid – 58.7%, in addition, furfural contains up to 10%. It is noted that in the process of distillation, a small part of phenols from the pyrolysis liquid also passes into the condensate.

Conclusion. In the process of vacuum distillation, a significant part of acids and water is isolated from the pyrolysis liquid. The condensate obtained during this process can serve as a source of acetic acid, and research is also being conducted on its use as a stimulant for plant growth.

References

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