

EFFECT OF BIOCHARS ON VETCH-OAT BIOMASS ON SOD-PODZOLIC SOIL

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A comparative analysis of the effect of biochar application on the plant biomass of the vetch-oat mixture and on the content of the main nutrients in these crops was carried in a 40-day laboratory experiment on sod-podzolic sandy loamy soil, differing in the degree of fertility. Three types of biochars were used: biochar made of bird droppings, sunflower husks and apple pomace, which were produced by fast pyrolysis at 400°C. The experiment was carried out in vessels placed under a light installation with a 16-hour light regime. Accounting for the crop biomass and determining the content of nitrogen, phosphorus and potassium in plants were carried out according to standard methods. As a result of the experiment, it was found that biochar made of bird droppings and apple pomace significantly ($p < 0.05$) increased the biomass of the vetch-oat mixture by 30% and 19%, respectively, compared to the control, on soil with medium fertility, and biochar made of sunflower husks did not affect this parameter. On a highly fertile soil, a significant ($p < 0.05$) decrease in plant biomass by 11% compared with the control was noted under the influence of biochar made of sunflower husks, and the other two types of biochar did not affect the biomass of the vetch-oat mixture significantly. In most of the treatments, the biochars did not affect the nitrogen content in the plants, but contributed to an increase in the plant potassium content. An increase in the plant phosphorus content was observed only in plants grown on the soil with medium fertility with the application of biochar made of bird droppings. Field studies are required to clarify the obtained results.

Keywords: soil fertility, biochar, biomass, vetch-oat mixture, nutrients.