Versatile Examination of the Biochar Products from Biol Mass Materials Subjected to Proliz Process

Pahal, Emre

Bas, Oguzhan

Today, organic wastes constitute an average of 68% of our domestic wastes. In addition, the plant waste on the fields at the end of the harvest also reaches millions of tons. For instance, it is known that the amount of tomato seed waste in our county at the end of the harvest is 12250 tons and efforts have been made to destroy these wastes in different ways just like burning. First of all, Ekobiochar machine was designed to obtain Biochar and byproducts. Biochar, pyrolytic oil, natural gas and water vapor have been obtained in experimental works carried out with this machine. The soil that uses the obtained Biochar material as the fertilizer was utilized for tomato production. The seeds with Biochar displayed twice as much improvement as the control group. Biochar-cultivated soil was observed to have less salinity (EC) and CaCO3 (limestone) and its organic matter density decreased from 3.64% to 7.59% compared to the other soil. In addition, valuable industrial products such as Pyrolytic oil, methanol, propanol and ether were obtained from the by-products. The pyrolysis process carried out at 400° C for 1 hour resulted in obtaining 24% Biochar and 7% Pyrolytic oil.According to these results, it was understood that Biochar material was a good organic fertilizer alternative to chemical fertilizer, plus, it achieved successful results in soil improvement. It was also determined that byproduct pyrolytic oil and natural gas could be used as alternative fuels.In our study a facility model was designed for large scale production of biochar, pyrolytic oil and natural gas materials from biomass wastes. In this sense, it has been proven that biological wastes in large quantities can be used for energy and valuable industrial raw material production as well as organic fertilizer.

Awards Won: