

ABSTRACT

To reduce the environmental impact of bone waste, it is need to use the bone waste in very effective way. This study investigates the utilization of bone waste to make bone char at three different temperatures (350°C, 550°C, 750°C) named BC-1, BC-2 and BC-3 and its application as soil amendment. Each bone char prepared at three different temperature applied in soil with three different concentrations (1%, 3% and 5% w/w) and check the impact on the growth of sunflower. The results of bone char characterization indicate that volatile content, bulk density hydrogen content decrease with rising temperature while fixed carbon, water holding capacity, electrical conductivity, pH and ash content increase with uprising temperature. “Scanning electron microscopy” (SEM) and “Fourier Transform Infrared Spectroscopy” (FTIR) results represents that variations in surface morphology and functional groups respectively in bone char prepared at different temperatures. The aromatic compounds were increased with the rising temperature and presence of alcoholic OH group indicates the hydroxyapatite. These properties improve soil fertility and other features viz; bulk density, water holding capacity, as a result sunflower yield increased. BC-2 present best growth yield at medium concentration (3%) and showed great potential for soil amendment. On the other hand, utilization of bone waste as organic fertilizer not only economically beneficial but also environment friendly.