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## Biochar effects on saline and none-saline soil properties of the Harran Plain Southeastern Turkey

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### Abstract

Effects of two different Biochars were evaluated on saline and none-saline soil properties. An incubation study was conducted using none-saline and saline soils collected from 0-30 cm depth of ikizce and Harran II series from Harran Plain, respectively and biochars of corn cobs (CC), and pistachio shells (PS). In this study, 0- 0.2- 0.4- 0.6- 1.2 and 2.4% of biochar rates were used. Soils and biochars were mixed well and wetted with water amount about 65% of field capacity of soils. Prepared mixed materials were incubated 180 days under 25±2 °C and about 65% humidity conditions and experiment was designed as completely randomized. Soil sampling was done during the 15<sup>th</sup>, 60<sup>th</sup>, 120<sup>th</sup> and 180<sup>th</sup> days of the incubation period. Soil pH and electrical conductivity (EC) values and carbon (C), and total nitrogen (N) amounts were determined in the soil samples. Study results indicated that increasing rates of biochar applications augmented the pH values slightly and lowered the EC values of the soils. More decrease of EC values existed in saline soil samples. The effects of biochar showed an increasing trend with increasing application rates and increasing sampling days. Higher applications rates (1.2 and 2.4%) of biochars much more increased the C values of none-saline soils than saline soils. When the biochar materials and the application rates were compared, the higher values of C and total N were taken from %1.2 application rate of CC and PS during the 120<sup>th</sup> day. Overall results indicated that biochars of CC and PS might be used as an organic soil conditioner to increase the soil C and N and decrease the EC values of saline soils of the Harran Plain.

**Key words:** Harran, biochar, salinity, corn cobs, pistachio shells, GAP region.

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