

## Abstract

In this study Fe, Zn coated biochar prepared with *Citrus sinensis* and *Juglans nigra* shells through slow pyrolysis method were used for the growth of *Abelmoschus esculentus* plant. The biochar and soil sample were characterized by Fourier Transform Infrared Spectroscopy (FTIR). Physical and chemical analysis was done that includes pH, Electrical conductivity, Nitrogen, Phosphorus, Potassium, Organic matter, Micro and Macro nutrients to found that rather soil and biochar combination was efficient enough to grow plants. Plants was grown in both controlled and varied concentration of treated biochar. 26 pots were prepared with various concentration of biochar. The use of biochar played important role in growth of plants like it induces double fertilization, vegetables was less mucilaginous having long and thick stems. In Fe coated biochar it was found that in case of citrus 15 grams biochar applied plant showed the bests growth and fruiting and in case of walnut 10 grams applied biochar showed the bests growth. In Zn coated biochar group 15grams of walnut coated with Zn pot showed best growth while in citrus this was showed in 20 grams applied biochar pot. Overall plants of *Abelmoschus esculentus* give 1<sup>st</sup> crop after 8 weeks. Results suggested that biochar mixed soil was effective in many points as it increases the growth, health, nutrition and fruiting time so can be used as fertilizer in agriculture.