A063 AGSC

Impact of Bokashi, Purple Non-Sulfur Bacteria, and Compost on Clonally propagated *Cannabis sativa*

Abstract

Removal of industrial hemp from federal government's list of controlled substances in the 2018 Farm Bill created an enormous interest in the crop across the United States. However, given that the crop has not been grown on significant acreage for over 80 years, the knowledge needed to grow the crop has largely been lost with limited peer-reviewed research. The use and development of appropriate nutritional amendments, fertilizers and bio-stimulants will be vital for the development of consumable, profitable and sustainable *Cannabis* markets.

An indoor experiment has been established by Two Tours LLC Incorporation with Tennessee State University to test the effectiveness of three organic nutrient sources for cannabinoid yield on *Cannabis*. The indoor operation is a remodeled 15x17 room fitted to support four identical stations each equipped with high pressure sodium lights and drip irrigation. Two clonally propagated *Cannabis* will be transplanted into 11.7-liter pots containing living soil mix from Native Soil Co. amended with three organic fertilizer treatments, set in a completely random experimental design with 4 replicates. Organic treatments will include bokashi (T1), purple non-sulfur bacteria [PNSB (T2)], compost (T3), non-amendment control (T4), bokashi and PNSB (T5), compost and PNSB (T6), compost and bokashi (T7), and bokashi and PNSB (T8). T1 and T3 will be applied at rates equivalent to 168 kg ha-1 whereas T2 will be applied according to Sakarika et al. (2020). Maturity stages of *Cannabis* will be manipulated by light cycles of 18/6-hour light/dark for vegetative period for two weeks and 12/12-hour light/dark for flowering period for 4 weeks. Harvest will be conducted at week 4 of flowering to ensure compliance with THC regulations. Use of bokashi and PNSB as organic amendment for hemp is novel and results from this study will add useful information and options for growers and the scientific community.