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Use of biofertilizer and biochar for enhancing compost quality: A trial on sandy soils of UAE

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Sandy soils lack organic matter and consequently the microbial activity. These soils are also low in water holding capacity due to high porosity and lack of aggregates. Improving the soil quality and microbial activity could therefore help to transform such soils into fertile and productive lands. Composts prepared from green waste can be used as a potential source of partially degradable but mainly stable organic matter. With recently recognized beneficial effects, biochar could further supplement the value of composts in improving the health and productivity of sandy soils. In the same context, use of effective microorganisms marketed as biofertilizers could further increase the microbial activity and biodiversity under sandy soil conditions like that in the United Arab Emirates.

In view of above, time course studies are underway in the greenhouse to determine the interactive effects of compost (2.5 and 5 tons ha-1), biochar (5 and 10% of the compost) and biofertilizer (1 L t-1 compost) on: i) physico-chemical properties including a) water holding/retention capacity, b) aggregate formation/stability, c) cation exchange capacity, d) electrical conductivity, and e) pH, f) humus content, N balance and ii) plant growth characteristic including a) seed germination, b) greenness, c) leaf water content, d) root and shoot biomass, e) N, P and K content of plant biomass. Results of these studies will be presented in the conference.