Plant Clinic Policy on Compost Tea

Compost tea is produced by combining composted plant and animal materials with water, usually at a ratio of 1:10 compost to water. These are sometimes mixed with an optional nutrient source, such as molasses or seaweed powder as an energy source. The nutrient source provides energy for the bacteria and fungi within the compost tea solution. Aerated compost teas (sometimes referred to as ACTs) are produced by bubbling air through the compost tea-water mixture. Non-aerated teas (sometimes referred to as NCTs) are made by mixing the compost and water and allowing them to ferment with little or no disturbance usually between two and seven days. Studies have shown that NCTs are superior to ACTs in providing plant nutrients when NCTs are steeped for a longer time of up to seven days.

Compost teas have been touted as a source of plant nutrients and for their ability to suppress plant disease. Proponents of the use of compost teas claim that they inoculate the soil with plant-available nutrients and beneficial soil organisms, and can reduce reliance on traditional fertilizers. In addition, aerated compost teas, applied directly to plant foliage, are thought to coat the leaves with beneficial microbes. These microbes may prevent disease-causing pathogens from harming the plant, via the physical barrier they provide on the leaf surface and by out competing harmful pathogens for food and nutrients. Whether or not compost teas benefit plants via inoculation with nutrients or beneficial microbes has been a contentious area of debate.

Thus far, the results of research on compost tea as a disease suppressant are equivocal. Some studies have found that ACTs and/or NCTs suppress disease. Other studies have found no disease-suppressant benefits of ACTs or NCTs. Furthermore, the specific conditions of the studies (e.g. components of the compost; foliar or soil application; additives or no additives; pathogen studied; plants tested) and the different outcomes of these diverse studies, complicates our ability to make a clear recommendation regarding the disease-suppressing benefits of NCTs and ACTs in home gardens.

However, research has found that compost tea provides equivalent levels of nutrients and has equivalent effects on plant growth, compared to ruminant compost, municipal solid waste or inorganic fertilizers. Compost tea’s effect on plant growth appears due to the soluble mineral nutrients and microbial by-products that are extracted into solution during the production process. These by-products stimulate root growth (similar to auxins, see Basic Botany Chapter) which in turn enhances plant nutrient uptake. Furthermore, research suggests that compost teas have a greater effect on nutrient uptake in plants grown on compost or vermicompost soils compared to plants grown on conventionally fertilized soils (e.g. Osmocote fortified soils).

Citations

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http://www.springerlink.com/content/23062576u34575j2/
