

Soil Nutrient Analysis Laboratory

Soil Nutrient Analysis Laboratory; 6 Sherman Place, Unit 5102, Storrs, CT 06269-5102 • Phone: 860-486-4274
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Compost Tea

By Dawn Pettinelli, Assistant Extension Educator

As gardeners look for more natural ways to promote the health and productivity of their plants, they are turning to the use of compost teas. Most everyone has heard of how compost benefits the soil and, in turn, plants whether they are turf grasses, tomatoes or trees. Compost is the nutrient and microbial rich end product of the decomposition of plant and animal materials. While natural decomposition processes occur all the time in the soil, compost is created by piling and mixing a variety of organic materials in a manner that hastens their decay under conditions conducive to nutrient conservation and aerobic decomposition. The resulting composted material can be added to garden and lawn soils, used as mulch, as a component to a seed starting mix or, if high in nutrients, as a fertilizer.

Older garden books often describe making and using compost tea. In the past, the directions for compost tea consisted of placing a shovelful of compost in a large bucket, filling it with water, letting it steep a few days, and then using it to spray on plant leaves or to water with. The primary benefit of such a concoction, referred to properly as a compost watery extract (CWE), is as a dilute source of nutrients. Manures were also used in this manner but this practice is not recommended now due to possible *E. coli* or other pathogenic organism contamination, especially if applied to food crops.

True compost teas are 'brewed' under aerobic conditions and referred to as AACT, actively aerated compost tea. The purpose of this type of solution is to provide plants and soil with added beneficial microbes that can help suppress plant



diseases. This is of particular interest to those gardeners who want to reduce or eliminate their use of synthetic pest control products.

For years now, organic gardeners in particular have noted the disease suppressing qualities of various composts. While largely anecdotal in the past, relatively recent and ongoing research studies have indeed confirmed that some composts can suppress some plant diseases. When you think about it, this does make sense. A good compost is home to billions and billions of microorganisms including bacteria, fungi and actinomycetes, to name a few. Such a diverse microbial community can fill ecological niches both in soil and on plant parts with a plethora of beneficial organisms that can crowd out harmful, pathogenic microbes. Also these microorganisms may produce antibodies, enzymes and other substances that can destroy, or at least minimize activity by disease organisms. It is really quite fascinating, this soil food web, and finally, information about this hidden treasure trove of life beneath our feet is becoming widely recognized and appreciated.

The actively aerated compost teas differ from the compost watery extracts in the way they are made. A specified amount of compost is added to a known quantity of unchlorinated water to brew while oxygen is bubbled through the mixture providing aerobic conditions for beneficial organism growth. AACT makers occasionally recommend adding a food source for the microbes like unsulphured molasses, cane syrup, or fruit juice although some research has shown that these compounds may encourage salmonella or *E. coli* growth. Other additions may include fish

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hydrolysate, kelp, humic and/or fulvic acids, phosphate rock and even orange pulp.

The goal of AACT is to produce a solution teeming with microbes. In fact, one source claims each teaspoon of AACT could contain around 4 billion bacteria! The tea is typically brewed for 2 or 3 days and then needs to be quickly used because if it sits it will begin to turn anaerobic. As the oxygen levels decrease, beneficial aerobic microbes are replaced by less desirable and sometimes harmful anaerobic ones. One sniff will tell you when the mixture is becoming anaerobic. The scent will not be pleasant.

There are AACT kits that can be purchased ranging in size from about 5 gallons to large commercial brewers. Home gardeners can put together a quick set up using a 5 gallon bucket, an aquarium pump with a bubbler, and some plastic tubing. One recipe calls for a pound (about 4 cups) of good quality compost for a five gallon bucket of water. Unchlorinated water is essential as chlorine kills microorganisms and the purpose of making an AACT is to grow them. The compost can either be added to the water and the resulting product strained before putting it in a sprayer or the compost can be contained in fine woven cheesecloth or even pantyhose. Stir and rearrange the bubblers a couple of times each day over the 2 or 3 day brewing period.

The key to making a high quality AACT is to start

with high quality compost. Backyard composters can control what goes into the making of their compost but commercial composts may vary greatly depending on the source. It may take a little searching to find that perfect compost for your AACT. In general, manure based composts are reputed to keep their disease suppressant abilities longer after maturing than plant based composts but this is still a new research area and much more work is needed before the final verdict is in.

Because of the variability of composts, some garden centers and nurseries are offering already brewed compost tea for a reasonable price. You can bring home a gallon of AACT and use it as is as a soil drench or dilute it by half or more and spray it on your plants. Some AACT devotees apply it to all their plants once or more each year. Others spray plants as needed to protect them from diseases.

Although the art and science of using AACTs is still in its infancy, it may be well worth your time to investigate the use of compost tea in your yard. It may not solve all your disease problems but it seems likely to encourage overall plant health.



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