

Compost Tea: Miracle Cure or Marketing Gimmick?

Compost Tea – An Introduction

Compost tea is a liquid extract produced by diluting compost with water. Anecdotal evidence suggests these teas may be effective against pathogens associated with foliar and fruit diseases. The theory is that bacteria, fungi, and other components in the tea act as biological controls. These organisms may work by inducing plant resistance, inhibiting pathogen growth, or outcompeting the pathogens. Some compost teas apparently contain large numbers of beneficial microbes that compete for space on leaves and fruits, denying pathogens space to colonize. Others apparently contain antimicrobial chemical compounds produced through decomposition and inhibit pathogen growth. However, few controlled, replicable scientific studies exist to support claims of the tea's effectiveness.

In addition, the potential exists for high nutrient loading of soils when such teas are used as fertilizer. Unlike compost used for mulch, which provides a slow release of nutrients, compost teas most certainly add increased levels of nitrogen, potassium, and other minerals all at once. It is unlikely that these are completely absorbed by the plants and instead may contribute to the eutrophication of watersheds.

Inconsistent Data

A lack of consistency in compost age and ingredients and tea preparation and application methodology makes evaluating claims of efficacy difficult and often leads to inconsistent and conflicting results. Variations in weather patterns can affect rates and severity of pathogen/disease damage, and therefore “effectiveness” of compost teas. Before any benefit can be attributed to a specific compost tea, the following criteria must be defined (and replicable):

- What is the age and source of the compost? What organic material is present?
- What is the method of preparation (aerobic vs. fermented)?
- What are the chemical properties of the compost (pH, % nitrogen, etc.)?
- What are the active ingredients? Are they chemical agents (allelopathic compounds)? Are they beneficial microbes?
- What is the mode of application? The frequency? The timing?
- What is the target pathogen?

Our Study

In a recent study, researchers in the Environmental Horticulture and Urban Forestry (EHUF) program studied the effects of compost tea sprays on cherry blossom brown rot. Blossom brown rot (*Monilinia laxa*) affects cherries and other stone fruits, causing their flowers to rapidly droop and become brown, eventually coating the dead flowers with fungal spores (Figure 1). These spores may then infest the plant's twigs, where they can overwinter and re-infect the plant the following spring. While in the twigs, the spores can cause considerable dieback of twigs and small branches.



Figure 1: A tree infected by cherry blossom brown rot

Jesse Craven, an EHUF student, evaluated trees in the Arboretum's cherry test plot with assistance from Washington Park Arboretum staff and the Seattle Parks Department. Thirty-two trees of eight different cultivars were studied (two trees per cultivar per treatment). Two treatments were compared: spraying with compost tea and spraying with water (the control). The trees were sprayed at the developmental stages - popcorn, full bloom, and petal drop - when fungicide would normally be applied. The trees were examined weekly, with the researcher noting their flowering stage and what percentage of the blooms were covered with brown rot.

Our study found that there was little difference in rates of brown rot infection between the two treatments (Figure 2). The compost tea did not reduce disease rates, and in some cultivars tea applications worsened the infection rates. These results suggest that compost tea is not an effective alternative to fungicidal applications, at least for suppression of brown rot. More research needs to be done on compost tea before any definitive recommendations can be made.

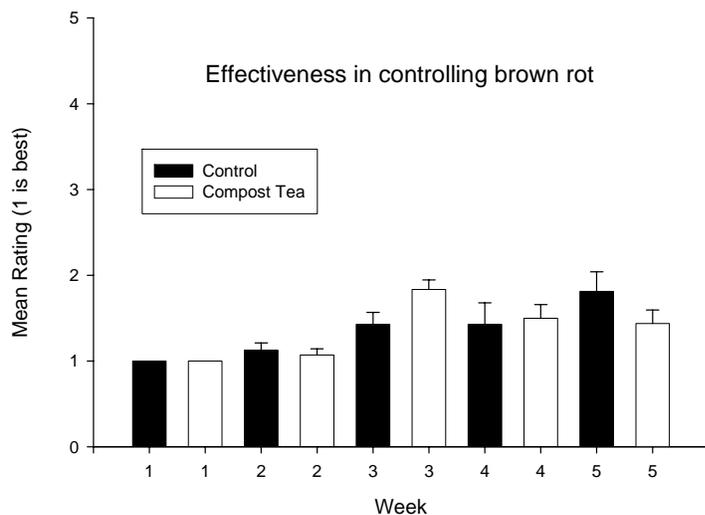


Figure 2: Average rating (\pm standard deviation) from our study of compost tea effectiveness in controlling cherry blossom brown rot. A rating of 1 indicates no disease presence, while a rating of 5 indicates 100% of a tree's blossoms were affected. Treatment with compost tea was not significantly different than treatment with water in controlling cherry blossom brown rot.

The Bottom Line

- Properly composted organic material makes a wonderful mulch
- Compost teas have not been suitably characterized, nor have their purported benefits been validated scientifically
- Compost teas can be overused and potentially contribute to ground water pollution

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