

# LITERATURE REVIEW

## Compost Tea: Principles and Prospects For Plant Disease Control

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An increasing body of experimental evidence indicates that plant disease can be suppressed by treating plant surfaces with a variety of water-based compost preparations, referred to in the literature as watery fermented compost extracts or compost teas. The terms nonaerated compost teas (NCT) and aerated compost teas (ACT) are used in this review to refer to the common production methods that diverge in the intent to actively aerate. Very little data directly compares the efficacy of NCT and ACT for plant disease suppression. A variety of foliar plant pathogens and/or diseases have been suppressed by applications of NCT while few controlled studies have examined ACT. For some diseases the level of control would be considered inadequate for conventional agriculture; organic producers with limited control options consider partial disease control to be an important improvement. For both compost tea production methods, decisions that influence pathogen suppression include choice of compost feedstocks, compost age, water ratio, fermentation time, added nutrients, temperature and pH. Application technology choices include the dilution ratio, application equipment, timing, rates, spray adjuncts and adding specific microbial antagonists. Increased understanding of compost tea microbiology and the survival and interactions of microbes on plants surfaces should make it possible to modify compost tea production practices and application technology to optimize delivery of a microflora with multiple modes of pathogen suppression. Innovative growers and practitioners are leading the development of new compost tea production methods and uses, generating many potential research opportunities. The use of compost tea as part of an integrated plant health management strategy will require much additional whole systems research by a cohesive team of farmers and experts in composting, plant pathology, phyllosphere biology, molecular microbial ecology, fermentation science, plant physiology, plant breeding, soil science, and horticulture.