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## Factors affecting compost tea as a potential source of Escherichia coli and Salmonella on fresh produce.

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#### Abstract

Compost tea (CT) is an unheated on-farm infusion of compost used as a spray or soil drench to promote plant growth and control foliar and root diseases. Because food safety involves all aspects from farm to fork, CT should meet basic microbiological criteria for water quality. This report describes the effects of two CT production processes, aerated and nonaerated, on growth and survival of foodborne pathogens and fecal coliforms. Seven commercially available nutrients used to supplement CT were tested individually and in combination for their effects on the growth of Escherichia coli and Salmonella. Compost containing 10(1) to 10(3) CFU/g initial concentrations of E. coli O157:H7 and Salmonella Enteritidis were used to assess growth and survival responses to aerated CT (36-h preparations) and nonaerated CT (8.5-day preparations). Pathogen and fecal coliform populations were undetectable by 8.5 days in nonaerated CT without nutrient supplements. E. coli O157:H7 decreased to below detection levels in aerated CT at 36 h without the use of supplements. In contrast, the addition of commercially formulated mixtures or combinations of nutrient supplements resulted in growth of E. coli O157: H7, Salmonella, and fecal coliforms by 1 to 4 log CFU/g in both aerated and nonaerated CT. When nutrient supplements were added, aerated CT sustained higher concentrations of E. coli O157:H7, Salmonella, and fecal coliforms than did nonaerated CT. Thus, addition of supplements supports growth of human pathogens from very low initial concentrations in both aerated and nonaerated CT and should be avoided when CT is used on fresh produce.

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