Quantification in Rhizosphere and Phyllosphere of E. coli O157:H7 by Plating and Real-Time (TaqMan) PCR. (S03-ibekwe165348-Poster)

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Abstract:

A highly specific method using multiplex, fluorogenic probes with quantitative real-time PCR has been developed to reproducibly detect and quantify Escherichia coli (E. coli) O157:H7 from the rhizospheres and phyllospheres of plants irrigated with contaminated water. The probes, designed to hybridize within regions of the stx1 and eaeA genes of E. coli O157:H7, were incorporated into real-time PCR reactions containing DNA extracted from the rhizospheres and phyllospheres of plants irrigated with water artificially contaminated with E.coli O157:H7. The degree of fluorescence was monitored in real-time PCR reactions containing 10 to 108 CFU of E.coli O157:H7 ml-1 and was found to be linear with the amount of template DNA ranging from 102 to 108 CFU ml-1. The detection limit for the assay was 2.6 x 102 in pure culture, rhizoshere and phyllosphere samples. The real-time PCR assay can be a useful tool for rapid quantification and monitoring of E. coli O157:H7 in irrigation waters and contamination of fresh produce.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 1808

Keywords:

Escherichia coli O157:H7, Rhizosphere, Phyllosphere, irrigation water