Quantification of Escherichia coli O157:H7 in organic vegetables and chickens.

ABSTRACT

The organic foods' market is becoming one of the rapidly growing sections in agricultural economies in the world. During the last two decades, food-borne outbreaks associated with fresh produce have rapidly increased. E. coli O57:H7, the caustic agent of acute hemorrhagic diarrhea and abdominal cramps, is mainly associated with meat and poultry product outbreaks but frequent outbreaks linked to the consumption of vegetables have been reported. The aim of this study was to investigate prevalence of E. coli O157:H7 in some organic foods. A total of 230 organic food samples including four-winged bean, tomato, white radish, red cabbage, chinese cabbage, lettuce, cucumber and chicken form retailed groceries and supermarkets in Malaysia were investigated. Low prevalence of E. coli O157:H7 was detected in organic vegetables and chickens. The estimated quantity of E. coli O157:H7 in all samples ranged from <3 to >2400 MPN/g. The overall MPN/g estimate of E. coli O157:H7 in the samples from organic groceries was higher than supermarket with the maximum of >2400 MPN/g. Most of the samples from supermarket showed a minimum of <3 MPN/g. The specific target genes produced amplicons of 259 bp and 625 bp after PCR amplification and E. coli O157:H7 was detected in 5.2% of total organic samples. Prevalence of E. coli O157: H7 in organic foods from groceries (8.8%) was particularly higher than supermarkets (1.0%). The highest prevalence of E. coli O157:H7 was observed in organic chickens (40%) purchased from groceries followed by four-winged bean (10%) and white radish (3.3%).

Keyword: E. coli O157:H7; Organic vegetables; Most probable number; Polymerase chain reaction