Title Efficacy of myrtle oil against *Salmonella* Typhimurium on fresh produce

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Abstract

The antimicrobial activity of myrtle leaves (*Myrtus communis*) oil was tested against the nalidixic acid resistant strain of *Salmonella* Typhimurium ATCC 13311. An inoculum (100 μl, ca.10^8 cfu/ml) was deposited on the skin of whole tomatoes and 10 g of shredded iceberg lettuce, dried for 2 h at 22 °C and held for 22 h at 4 °C before treatments. Inoculated iceberg lettuce (3.51–3.99 log cfu/g) and tomatoes (3.47–4.86 log cfu/tomato) were treated with three different washing procedures for 5, 10, 15 and 20 min; washing with sterile distilled water (control), washing with three different concentrations of myrtle leaves oil and the last treatment was a combination of washing with myrtle leaves oil and then rinsing in sterile distilled water for 1 min. Washing with myrtle leaves oil with or without rinsing procedures caused significant reduction in *S.* Typhimurium population compared with the control after treatment for four different times ($p < 0.05$). There is no significant difference between washing times in reduction of *S.* Typhimurium ($p > 0.05$). The maximum logarithmic reductions of 1.66 cfu/g–1.89 cfu/tomato were respectively obtained on iceberg lettuce and tomatoes treated with 1000 ppm myrtle leaves oil without any rinsing treatment. The results suggest that the use of myrtle leaves oil is an innovative and useful tool as an alternative to the use of chlorine or other synthetic disinfectants in fruits and vegetables, especially for organic products.