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Research abstract

Growth/Survival of *Listeria monocytogenes* Scott A with Essential Oil Citral and pH in a Gel Model

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Abstract: The objective of this study was to evaluate the effect combined of pH (5, 6 and 7) and citral essential oil (0 ppm, 100 ppm and 200 ppm) in solid conditions (TSA media). *Listeria monocytogenes* culture was diluted to final concentration of 1×10^4 cells which were to empty in petri dishes. TSA media was supplemented with 0.6% yeast extract and added with citral essential oil (from a stock solution of 10,000 ppm) in different concentrations: 0 ppm, 250 ppm and 500 ppm. pH initial of TSA media was adjusted with concentrated HCl. All treatments were incubated at 35°C during 24 h. All treatments were incubated at 35°C during 24 h. A significant reduction (100% of inhibition) of *Listeria monocytogenes* Scott A population was observed at pH 4 with or without citral essential oil. In these experimental conditions bacterial control showed a reduction of 25% with citral essential oil at 500 ppm (pH 5.0). Also in pH 6.0 there was a reduction of *Listeria monocytogenes* approximately in a 50% in 250 ppm. At pH 7 was 25% of inhibition with 250 ppm and 500 ppm of citral essential oil. The combination of pH 6.0 and pH 7.0 and citral essential oil can be used as an alternative to improve the inhibition of *Listeria monocytogenes* in different systems of foods.

Keywords: *Listeria monocytogenes*, citral essential oil, system mode

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