



EFFICACY OF OZONATED WATER AS DISINFECTANT FOR ORGANIC ROMAINE LETTUCE (*Lactuca sativa* L.)

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ABSTRACT – There is a need to find an alternative disinfectant to chlorine for Filipino organic farmers as the absence of postharvest disinfection may pose food safety risks to ready-to-eat produce. To address this gap, this study evaluated the efficacy of ozonated water in disinfecting uninoculated and artificially-inoculated organic Romaine lettuce through microbiological quality testing and microbiological shelf life determination. Data showed that disinfection of uninoculated, organic Romaine lettuce leaves with 125 ppm ozonated water resulted to heterotrophic plate count reductions (0.77-1.18 log₁₀) equivalent to that of 200 ppm chlorinated water treatment at any exposure times (2, 5, and 10 min) ($p>0.05$). For the artificially-inoculated samples, both disinfectant solutions (chlorinated and ozonated water) produced equivalent reductions in *E. coli* count (1.31-2.39 log₁₀) at any exposure times (2, 5, and 10 mins) ($p>0.05$), as well. Moreover, disinfection of organic Romaine lettuce with chlorinated and ozonated water did not exceed the recommended limit for heterotrophic plate count during the entire 6-day storage period at 10°C. Thus, disinfection of Romaine lettuce leaves using ozonated water at 125 ppm for at least 2 min could substitute the FDA-recommended chlorine disinfection for use in organic farming.

Keywords: chlorine, organic Romaine lettuce, ozonated water



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