TITLE: MICROBIOLOGICAL EVALUATION OF IRRIGATION WATER AND LETTUCE (*Lactuca sativa*) FROM ORGANIC PRODUCTION IN THE ITAJAÍ MIDDLE VALLEY - SANTA CATARINA

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ABSTRACT: Diseases and the number of deaths caused by food contamination represents a threat to global public health as well as obstacle to socioeconomic development. Several factors may be related to the pathways of contamination from pathogens, such as animal manure, irrigation water, agricultural practices, edaphic and biological factors, among others. The objective of this study was to evaluate the microbiological quality of irrigation water and lettuce samples (*Lactuca sativa*) produced under organic system in the Itajaí Middle Valley (SC, Brazil). Six of the eight organic producers identified in the region, agreed to participate for this study. Samples of ready-to-harvest lettuce and irrigation water were obtained for a period of seven months (September 2016 – March 2017) and analyzed using the multiple tubes for thermo-tolerant coliforms and presence or absence of *Escherichia coli*. In the lettuce samples, the mean contamination levels of 146.59 $NMP.g^{-1}$ for thermos-tolerant Coliforms and 47.77 $NMP.g^{-1}$ for *E. coli* were observed. The highest mean for both parameters was 1100 $NMP.g^{-1}$, while the lowest level was 3 $NMP.g^{-1}$. The mean for thermo-tolerant coliforms levels and *E. coli* of irrigation water was 977.77 $NMP.100\ mL^{-1}$ and 846.05 $NMP.100\ mL^{-1}$, respectively. The highest mean was 16.000 $NMP.100\ mL^{-1}$ for thermos-tolerant coliforms and 3.500 $NMP.100\ mL^{-1}$ for *E. coli*, while the lowest level for both parameters was 1.8 $NMP.100\ mL^{-1}$. Compared to international standards, levels of thermos-tolerant coliforms and *E. coli* exceeded recommended water and lettuce thresholds. However, as already described in other studies, the risk can be easily mitigated if farmers and households are aware of the potential risk.

Keywords: Environmental microbiology, food safety, organic vegetables.

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