

TITLE: MICROBIOLOGICAL ANALYSIS OF VEGETABLES AND IRRIGATION WATER FROM THE CONVENTIONAL CULTIVATION SYSTEM: A CASE STUDY IN THE GREEN BELT OF THE MUNICIPALITY OF ARAPIRACA-AL

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ABSTRACT:

The demand for healthier and better quality food has been a factor of great relevance. Healthy and balanced nutrition is essential for health as it contributes to physical and mental well-being. Therefore, the quality of vegetables should be established with practices that guarantee the lowest possible microbial load to the final product, so that they can be consumed safely. This work aimed to analyze the occurrence of microbial contaminations of irrigation water and vegetables (coriander, chives and lettuce) produced in the Alagoas green belt. The microbiological and physicochemical evaluation was carried out in the Laboratory of Microbiological Analyzes of the Polo Tecnológicos Agroalimentaria de Arapiraca, using the Most Likely Number technique - NMP according to the American Public Health Association and the flame photometric technique for quantification of sodium and potassium. After the microbiological evaluation, it was verified that 87% of the chives samples presented presumptions for total coliforms. In the coriander and lettuce samples, approximately 88% and 95% of the tubes were positive for total coliforms, respectively. In the confirmatory test, coriander and onion, tubes with gas production were observed after 24h, but when staining in L-EMB agar the colonies did not present typical morphology of *Escherichia coli*. The lettuce samples, in the EC broth, 8% presented tubes with gas growth after 24h, and were confirmatory in the L-EMB agar, presenting all the typical morphological characteristics of *E. coli*. The microbiological result of the irrigation water samples showed that 100% of the tubes were confirmatory for total coliforms. In the EC broth, 5% of the tubes showed positivity for thermotolerant coliforms. The results of the Na⁺ and K⁺ ion analysis of the irrigation water, it is possible to conclude that the Na⁺ concentration is within the expected range. Differently from K⁺ that presented high values for the three samples of the five samples. Based on the microbiological analyzes, it was possible to observe that chives and coriander were suitable for consumption, since there was no confirmation of fecal contamination in any of the analyzed samples. As for lettuce, greater care is required from farmers and consumers, since fecal contamination has been found. As the vegetable is usually eaten raw, it is recommended to sanitize and sanitize.

Keywords: biological indicators, coliforms, *Escherichia coli*, food safety.

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