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Microbiological and Physical Assessment on Tomato Purchase from Online Delivery Services

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Structured Abstract

Background: Tomatoes are prone to rapid deterioration as it is very fragile due to higher sensitivity towards environmental conditions like temperature, pressure applied and more. During the delivery process, the physical and microbiological attributes of fresh tomatoes might be affected. Thus, this study focuses on identifying the microbiological and physical characteristics of tomatoes purchased from online food delivery services.

Methods: The tomatoes were purchased from two different online food delivery services referred as OFDS A and OFDS B, with the samples purchased from the market directly served as control. Thus, the microbiological assessments conducted include *Escherichia coli* and Coliform count plates by using 3M Petrifilm plates, and total plate count (TPC). While the physical assessments include determining the pH, texture evaluation, and total soluble solids of fresh tomatoes.

Results: This study shows that there is no growth observed from all the tomatoes for both *Escherichia coli* and coliform counts while the OFDS A (5) and OFDS B (2) have resulted in 1.02×10^4 CFU/ml and 3.73×10^5 CFU/ml, respectively for the TPC. Thus, the number for the microbial assessment indicates that it is safe to consume the tomatoes purchased from online delivery services as it does not exceed the allowable colony-forming units (CFU) limit of 10^6 per gram. In terms of the physical attributes, the fresh tomatoes are maintained at good quality as there are no significant differences between the samples throughout the determination of pH level and texture evaluation except for the total soluble solids of OFDS B that is slightly lower than the control and OFDS A.

Conclusion: In conclusion, the tomatoes delivered by both online food delivery services OFDS A and OFDS B is safe to consume as it does not exceed the allowable CFU limit mentioned in the Food Regulation 1985 and the quality of the fruits is maintained same as the market as there is no significant differences throughout the determination of the physical attributes except for the total soluble solids. Thus, the findings of this study provide an understanding of the importance of food microbiology and quality served in the delivery of fresh products.

Keywords: Tomato, Online Food Delivery Services, Total Plate Count (TPC), Colony-forming Units (CFU).

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