

UNIVERSITI TEKNOLOGI MARA

**PRESENCE OF *ESCHERICHIA COLI* AND
TOTAL COLIFORM IN RAW, READY-TO-
EAT VEGETABLES IN PUNCAK ALAM**

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Project submitted in fulfillment of the requirements for the
degree of
**Bachelor in Environmental Health and Safety
(Hons.)**

Faculty of Health Sciences

July 2018

DECLARATION BY STUDENT

My original research work was entitled "Presence of *Escherichia Coli* and Total coliform in raw, ready-to-eat vegetables at Puncak Alam" and I have clearly complete each chapters in this project. The contributions from all parties have made me enthusiastic and hard work to clearly denote the importance of this project by referring to the literature review, acknowledgement of collaborative research and also discussions in this project. This project was completely done under the guidance from my Project Supervisor, Megat Azman Bin Megat Mokhtar. Final year project is one of the requirement to complete the Degree of Bachelor in Environmental Health and Safety (Hons) and the project has been submitted to the Faculty of Health Sciences in UiTM Kampus Puncak Alam.

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ACKNOWLEDGEMENT

In the name of Allah, The Most Gracious and The Most Merciful

Alhamdulillah, all praise belongs to Allah S.W.T, peace and blessing to Prophet Muhammad S.A.W., all prophets and their family. I praise to Allah for giving me opportunity and strength in completing my study. Thanks Allah for blessing until I am finished my thesis.

I wish to thank and I owe my deepest appreciation to my supervisor, Megat Azman Bin Megat Mokhtar for the encouragement, guidance and unlimited support toward this project from beginning and toward the end of this project. I also want to thank to him for the knowledge, motivation and enthusiasm always be precious for me. Not to forget, I would like to thanks to all lecturers in Environmental Health and Safety Department who always share their knowledge and advised throughout this study.

My special thank extended to the most special persons in my heart, my beloved parents. This thesis was dedicated for both of you Amran bin Rakiman and Zalehah binti Mansor for your prayers, supports and sacrifice throughout my study. To my siblings, thank you for continuous support and always being there for me. I am blessed to have all of you as my family.

My sincere thanks to all laboratory staff and our Cis who give their full cooperation and help in many way for completion this study. Not to forget to all my colleagues especially from HS 243/8A, thank you for your cooperation, help and suggestion during this study and thank you for the moment that we share together. Then, I would like to thank to the food premises owner that giving me opportunity to take samples for my research at their food premises. Lastly, I would like to thank to all person who directly and indirectly involve in this study. Thank you.

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ABSTRACT

In Malaysia, ready-to-eat vegetables are famous and chosen by consumers that can be get from food premise or supermarket. In food premise, examples of ready-to-eat vegetables sold are (ulam) ulam raja, lettuce, cucumber, winged bean and others. As for supermarket, there were mixed salad, cherry tomatoes that ready-to-eat, and come with the sauce seasoning. The study was conducted at food premises and supermarket around Puncak Alam with 44 samples of ready-to-eat vegetables, leafy and non-leafy. The samples are analyzed in laboratory of UiTM Puncak Alam. The 44 samples were analyzed in sterile procedure from both place, then homogenized with peptone water and the solution were spread plated onto medium agar for 24 hours in 37 C. The study design was cross sectional study and statistical analysis used was T-test and Mann Whitney in SPSS version 21. The result show the presence of both bacteria which is *Escherichia Coli* and total coliform in all samples analyzed. Presence of *Escherichia Coli* in 44 samples of ready-to-eat vegetables both leafy and non-leafy with mean and standard deviation of colony forming unit (log cfu/mL) 2.5 ± 1.5 . While for presence of total coliform in samples, the mean and standard deviation for all samples both leafy and non-leafy was 4.3 ± 0.6 . The hypothesis testing are accepted where food premise have higher numbers of colony forming unit (CFUs) for both *Escherichia Coli* and total coliform. For comparison between leafy and non-leafy vegetables in food premise, result obtained was leafy vegetables have higher numbers of colony forming unit (CFUs) than non-leafy for *Escherichia Coli* and total coliform with significant differences. As for supermarket's comparison, higher numbers of colony forming unit (CFUs) are non-leafy vegetables species but no significant differences between that. The bacterial counts for all samples analyzed were similar to results found from study before, however, ready-to-eat vegetables analyzed are not acceptable for human consumption. Therefore, mitigation measure need to be taken to prevent the occurrence of foodborne disease from ready-to-eat vegetables.

Keywords: *Escherichia Coli, Total Coliform, ready-to-eat vegetables*