UNIVERSITI TEKNOLOGI MARA

BACTERIOLOGICAL QUALITY OF RAW MILK

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

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Declaration by Student

Project entitled "bacteriological quality of raw milk is a presentation of my original research work. Wherever contributions of others are involved, every effort is a made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of En Hashim Bin Ahmad as Project Supervisor. It has been submitted to the faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons.)

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I am grateful to the Almighty with His grace I have successfully finished my Final Year Project (FYP) as required by the department for final year students of Bachelor of Environmental Health and Safety (Hons).

First of all I would like to thank to my Supervisor, En. Hashim Bin Ahmad for the guidance, encouragement, advices and ideas that was given to me. Indeed all the knowledge given to me, I will use the best for future and I will work to overcome nature.

Last but not least, I would like to convey highest appreciation to all lecturers of Environmental Health and Safety Departments especially Dr. K. Subramaniam for all the supervision, advices and ideas during finishing my research, parents and fellow friends for guidance, often inspired and supporting me to keep standing and pushing towards the completion of this study.

Thank you.

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Abstract

Bacteriological quality of raw milk

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Introduction: Food poisoning results when eat food contaminated with bacteria or other pathogens such as parasites or viruses. Preparation of food in advance of needs combined with improper storage and inadequate cooking, cooling and reheating were the most common factors. One of the causes of food poisoning is contamination of raw milk. Bacteria commonly linked to raw milk and poultry is causing food contamination. Raw milk is not pasteurized, homogenized or frozen, nor has it been altered with additives, chemicals, light or homogenization. Amongst the coliform, *Escherichia coli* are the most common contaminant of raw and process milk. Total plate count, coliform and e.coli count and detection of Salmonella were determined to analyze the safety and quality of raw milk.

Methodology: The study was done with raw milk from cattle farm within Shah Alam and Klang area. Raw milk (n=10) of each of the cattle farm (n=5) was sampled.Total plate count, *escherichia coli* and coliform count and presence of *salmonella spp* was detected from raw milk. Data analyzed using Microsoft Excel 2007 and SPSS version 17.0.

Result: Mean of total plate count, *e.coli* and coliform at sampling point A is 1.2×10^4 cfu/ml, 2.7×10^2 cfu/ml and 9.2×10^2 cfu/ml respectively. While mean of total plate count, *e.coli* and coliform at sampling point B is 9.0×10^3 cfu/ml, 0.2×10^2 cfu/ml and 7.0×10^2 cfu/ml respectively. For sampling point C, the mean of total plate count, *e.coli* and coliform is 1.0×10^4 cfu/ml, 1.3×10^3 cfu/ml and 9.0×10^3 cfu/ml respectively. Mean of total plate count, *e.coli* and coliform at sampling point D is 1.7×10^3 cfu/ml, 0.8×10^2 cfu/ml and 0.8×10^2 cfu/ml respectively. While at sampling point E, the mean of total plate count, *e.coli* and coliform is 4.0×10^3 cfu/ml, 2.1×10^2 cfu/ml and 0.5×10^2cfu/ml. All the samples were detected with *salmonella* spp. but differ in percentage at each sampling point.

Conclusion: Hygiene of milking and farm management is also affect the quality of raw milk. High microbial counts and the occurrence of pathogens are likely to affect the quality and safety of raw milk. It is recommended that training and guidance should be given to farm's owner and their workers to avoid cross contamination to raw milk.

Keywords: Raw milk, Food Poisoning, Hygiene, Pathogens