# BACTERIAL ANALYSIS OF RAW AND PASTURIZED MILK, AVAILABLE IN SELECTED AREAS OF ISLAMABAD, PAKISTAN

A thesis is submitted to Bahria University, Islamabad in partial fulfilment of the requirement for the degree of BS in Environmental Sciences

**Aiman Khan Awan**

**Syed Muhammad Saad Bukhari**

**Shehroz Ahmed Agha**

**Department of Earth and Environmental Sciences**
**Bahria University, Islamabad**

**2018**

## ABSTRACT

In this study, microbial content and biochemical characteristics of raw and pasteurized milk samples, collected from various locations of Islamabad, were studied. The sampling for raw milk was done early morning and evening on daily basis, as per the requirement for raw milk in sterilized plastic bottles according to the standard protocols. The *pasteurized milk* samples collected were among such brands which are popular and also which are not widely known to be used. The samples were analysed bacteria officially by serial dilution and standard plate count on different microbial official media. The Counts of total bacteria, total coliform, total fecal coliform, E-coli, and Salmonella were determined in milk samples. The microbial analysis of pasteurized milk samples gave no presence of any bacterial colonies on the media plates. Which shows the good microbial quality of pasteurized milk being produced and supplied further while, All the raw milk samples were individually bacteriologically analysed for the total viable count, plus the total coliforms counts by standard plate count method. The bacterial colonies which altered on media plates were characterized by performing various biochemical tests; gram staining, catalase test, oxidase test and the citrate utilization tests. The results of raw milk samples showed that the raw milk samples contain different bacteria which are pathogenic in nature like *Salmonella and shigella, E. coli*. It demands the regulatory authorities to check and monitor the quality of raw milk being supplied from dairy farms and from local shops. This needs attention from government and from public too, in order to remediate the concerning issue as may cause diseases in people consuming it.

## ACKNOWLEGMENT

All the praises go to Almighty Allah, the most merciful. All the knowledge and skills endowed to mankind is from Him. He bestowed us with the potential to contribute a little to the knowledge of mankind. We are nothing without His mercy. All the respect is for the Holy Prophet Muhammad (PBUH) who reformed us to our creator and who is the source of our forgiveness.

We are grateful to our research supervisor, Dr. Asma Jamil Senior AP, Department of E and ES BUIC, as her knowledge, technical expertise and guidance enabled us to complete this dissertation. She remained a source of inspiration throughout the research with her empirical approach for this work.

We are grateful to the, Professor Dr. Tahseenullah Khan Head of Department of E and ES BUIC, for providing all lab facilities to carry out this task.

Last, but not the least appreciativeness is for Mr. Imtiaz Khan, Lab Assistant, Bahria University, Islamabad, for assisting us in experimentation throughout the research.

We heartily pay a special thanks to our parents who supported us in our studies up till now and due to them today, we are able to present this thesis.

## CONTENTS