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Assessment of Microbial Quality of Khoa

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ABSTRACT

The aim of the study was to determine the microbiological evaluation of khoa sold in different markets of Kanpur City. To achieve the objectives of the present study the khoa evaluated with help of microbiological tests were done in different markets of Kanpur City. Total 54 samples of known were collected from the 5 markets (Ramdevi, Kalyanpur, Nawabganj, Govindnagar and Collectorganj markets respectively) of Kanpur City and one control sample from the dairy of C.S.A. University. Khoa sample was taken 3 times from each market for the enumeration of microbiological evaluation.

Keyword: *Microbial, Standard Plate count, Coliform, Yeast and Mould.*

INTRODUCTION

The preparation of Khoa, as milk is subjected to the high heat treatment, a great majority of micro-organism present in it are destroyed. However subsequent contamination may take place due to improper handling of the product and unhygienic surroundings in which it is marketed. On one hand khoa may be transported very easily up to any distance but on the other hand it is sufficiently moist, to permit the growth of micro-organisms, among these moulds as a rule give the visible growth on its surface within few days of storage at room temperature. The keeping quality of the khoa product it adversely affected by thermoduric organisms and organisms acquired during storage. The product is manufactured by traditional method without any regard to the quality of raw material used and hygienic storage. Under these conditions, micro-organisms find access to product and contaminate it. Khoa is perishable food product and has short shelf-life.

MATERIALS AND METHODS

During the study the collected samples of Khoa from the different shops of markets o Kanpur City were subjected for the following treatments to judges the microbial quality of khoa.

Preparation of samples for the microbial analysis by standard plate count, coliform count, Yeast and Mouldcount.

PREPARATION OF DILUTION

Dilution was made from 1:10 diluted solution prepared as above in sterile normal saline (9 gm. Of sodium chloride/liter) solution. The dilution up to 1: 10,000 were made usual precaution were taken during the preparation of dilutions to prevent the contamination separate-sterile 1 ml pipette was used for each solution.

Microbial quality of all the khoa samples was determined by the following methods:

1. **Standard Plate count**: It was done to assess the total number of living bacteria in the khoa samples. The nutrient medium used for growing bacteria was plate count agar.
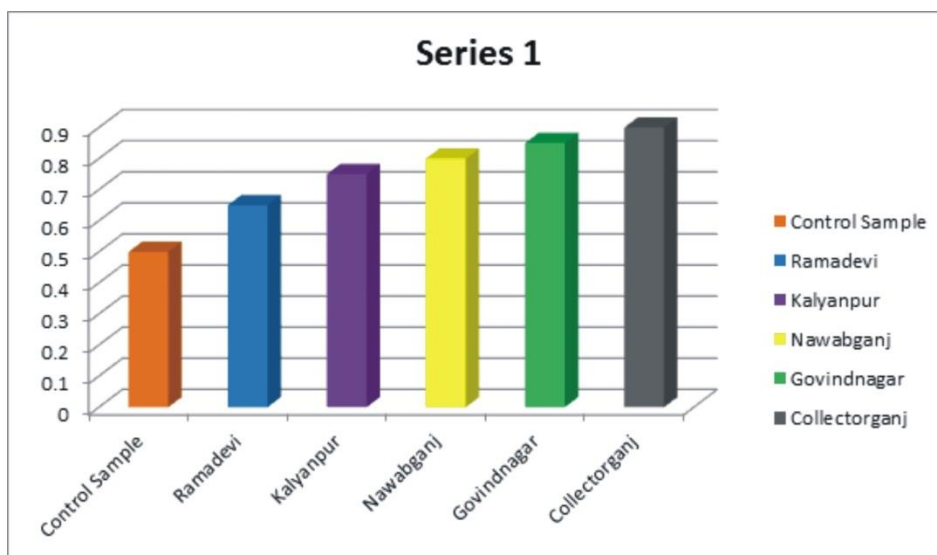

Fig. 1: Mean score for standard plate count (SPC x 10^5) of khoa from different markets of Kanpur city

The mean score of standard plate count in khoa from different markets of Kanpur City was found to be 0.50, 6.65, 0.80, 0.85 and 0.90 for C, RD, KP, NG, GNB and CG Markets respectively. The range of Standards plate count (SPC) of control sample of khoa was ranged from 00.5-0.45 with the mean score of 0.50 x 10^5 ± 0.05. The maximum mean score

0.90 x 10^5 ± 0.05 of SPC were found in the sample of Collectorganj market and minimum mean score 0.6 x 10^5 ± 0.05 of SPC were found in the sample of Ramadevi Market.

2. **Coliform count**: Violet red bile agar (Hi-media) was used for enumeration of coliform in khoa.
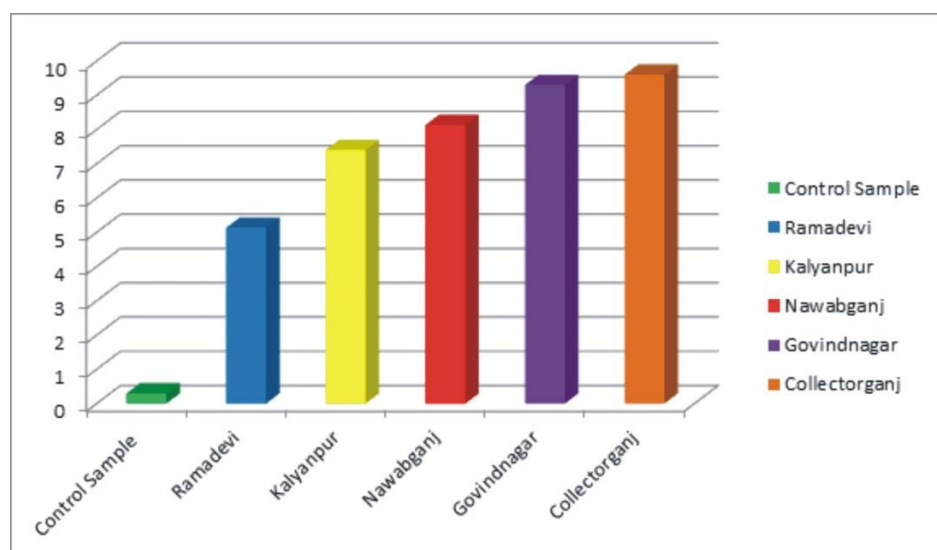

Fig. 2: Mean score for coliform count (CFC x 10) of khoa from different markets of kanpur city

The mean score of coliform count in khoa from different markets of Kanpur City was found to be 0.0, 5.1, 7.4, 8.1, 9.3 and 9.6 for C, RD, KP, NG, GNB and CG Markets respectively.

The range of coliform count organisms of control sample of khoa was found as with the meanscore 0±0.00. The maximum mean

score $9.6 \times 10 \pm 0.10$ of coliform count were found in the sample of collectorganj market and minimum mean score $5.1 \times 10 \pm 0.06$ of coliform count were found in the sample of Ramadevi Market.

3. **Yeast and mould count**: Potato dextrose agar medium was used for enumeration of yeast and Mould count in khoa.
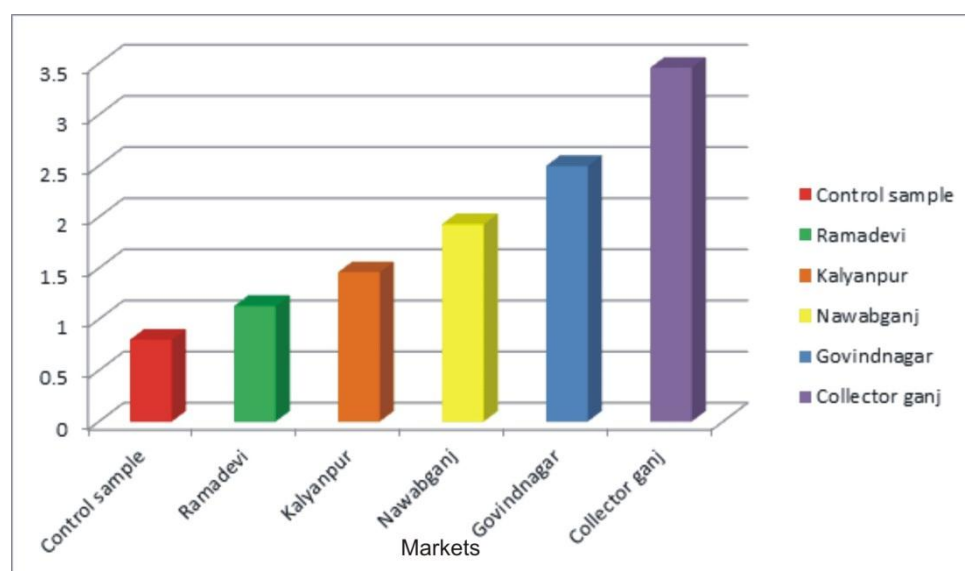

Fig. 3: Mean score for yeast and mould (Ymc x 10^2) of khoa from different markets of kanpur city

The mean score of yeast mould in khoa from different markets of Kanpur City was found to be 0.8, 1.13, 1.46, 1.93, 2.5 and 3.46 for C, RD, KP, NG, GNB and CG Markets respectively.

The range of yeast and mould count of control sample of khoa was ranged from 0.8 - 0.8 with an mean score of $0.8 \times 10^2 \pm 0.05$. The Maximum mean score $3.46 \times 10^2 \pm 0.23$ of yeast and mould count were found in the sample of Collectorganj market and minimum mean score $1.13 \times 10^2 \pm 0.15$ of yeast and mouldcount were found in the sample of Ramadevi Market.

CONCLUSION

The present investigation "Microbiological evaluation of khoa sold in different markets of Kanpur city" was carried out by obtaining khoa samples from different markets of Kanpur City. The microbiological quality of khoa on account of different markets for khoa samples were rated on basis of maximum and

minimum (mean scoring). The range of standards place count (SPC) organisms of laboratory (Control sample) khoa was ranged from 0.50-0.45 with an average of 0.50×10^5. The maximum mean score 0.90×10^5 of SPC were found in the sample of Collectorganj Market and minimum mean score 0.65×10^5 for SPC were found in the sample of Ramadevi Market.

The maximum mean score 9.6×10 of coliform count were found in the sample of Collectorganj market and minimum mean score 5.13×10 of coliform count were found in the sample of Ramadevi Market.

The range of yeast and mould count organisms of laboratory (Control Sample) khoa was ranged from 0.8-0.75 with mean score of 0.8×10^2. The maximum mean score 3.46×10^2 of yeast and mould count were found in the samples of Collectorganj Market and minimum mean score 1.13×10^2 of yeast and mould count were found in the sample of Ramadevi Market.

It is concluded that the result of the study of microbiological samples of khoa of different markets (Ramadevi, Kalyanpur, Nawabganj, Govindnagar and Collectorganj) of Kanpur City was found to be contaminated whereas the control sample of khoa which was made from the dairy milk of C.S.A. University was found the excellent quality and there was no contamination in control sample.

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