• قسم : المراقبة الصحية على الاغذية

• كلية الطب البيطري ـ جامعة أسيوط

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الحالة الصحية للبن الحُليب بمدينة أسيوط

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تم فحص ٦٠ عينة لبن حليب جمعت من مدينة أسيوط ، ٣٠ عينة من ألبـان الأسواق، ٣٠ عينة من المزارع الحكومية وذلك لتحديد الحالة الصحية لانتاجها .

أثبتت النتائج وجود أعداد كبيرة من الميكروبات الممرضه وغير الممرضة ممـا يدل على اهمال الاشتراطات الصحية أثناء انتاج وتداول هذه الألبـان.

وقد تم مناقشة خطورة وجود هذه الميكروبات على الصحة العامة والاشتراطات الصحية الواجب توافرها للمحافظة على صحة المستهلك .

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SANITARY CONDITION OF MARKET MILK IN ASSIUT CITY
(With 3 Tables)

By

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SUMMARY

The sanitary condition of market milk in Assiut City was denoted by microbiological investigation of 60 samples taken from different retial outlets. Standard plate and differential counts (coliforms, thermodurics, psychrotrophs, enterococci, yeasts and molds) revealed gross contamination. In addition, E.coli and anaerobes could be detected in the majority of smaples. It is concluded that standards of hygiene in the production and handling of milk needs to be improved through education of both the rural and urban population.

INTRODUCTION

The quality of market milk produced in Egypt is not satisfactory from the hygienic point of view. Several types of microorganisms, including coliforms, heat resistant (thermodurics), cold resistant (psychrotrophs), enterococci, yeasts and molds gain enterance to milk through different sources and multiply rapidly when conditions become favorable for their growth. The types of organisms present in milk serve as an indicator for the hygienic measures taken during production, handling and distribution.

Considerable work has been done to estimate the number and types of organisms present in milk under different conditions of production and handling (EL-RAFEY, 1962; HARTLEY et al.,1969; RANDOLPH et al.,1973; GAHLOT et al.,1975 and AL-ASHMAWY and AL-SAMERRAEY, 1981).

The present study was undertaken to assess the extent of contamination in market milk in Assiut city.

MATERIAL and METHODS

60 milk samples were collected at random from Assiut City, of which 30 from street vendors and dairy shops, and 30 from dairy farms. The samples were transferred to the laboratory without delay and subjected to the following examination :

1-   Standard plate count (A.P.H.A., 1978).
2-   Coliforms count and isolation of E.coli (MERCURI and COX, 1979).
3-   Detection of anaerobes (CRUICKSHANK et al., 1969).
4-   Thermoduric count (A.P.H.A., 1978).
5-   Psychrotrophic count (A.P.H.A., 1978).
6-   Enterococcus count (ISHENBERG et al., 1970).
7-   Yeasts and Molds count (HARRIGAN and MARGARET, 1976).

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RESULTS

The obtained results from the examined samples are recorded in Tables 1-3.

DISCUSSION

Table 1 revealed that the standard plate count varied between 4×10^5 and 2×10^{10}/ml with an average of 1×10^9/ml for market milk samples. Corresponding values for dairy farm milk samples were 3×10^5, 2×10^8 and 4×10^7/ml, respectively. Similar studies at Cairo University (AL-ASHMAWY and AL-SAMERRAEY, 1981) showed lower contamination of 200 bulk milk samples taken from dairy farms, the bacterial counts ranged between 1×10^4 and 8×10^7/ml with an average of 3×10^6/ml. However, the present results are in accordance with those reported by GAHLOT et al. (1975).

100% of the examined samples had coliform organisms. Their number showed an apparent correlation with the standard plate count especially for farm milk samples (Mean: 4×10^5 coliforms/ml).

Analysis for presence of E.coli revealed percentages of 70% and 66.6%, while anaerobes were present in 46.67% and 63.33% of market and farm milk samples, respectively (Table 2). The presence of these organisms in milk is an indication of faecal pollution and this explains the prevalence of diarrhoea among children, especially during summer months.

In another experiment, the mean thermoduric counts/ml in market and farm samples were respectively, 5×10^4 and 1×10^4. It is interesting here to mention that these organisms shouled be held to low numbers in any milk supply. Excessive numbers in the raw supply make it difficult to meet bacterial count standards for pasteurized milk.

Enumeration of psychrotrphs in examined samples revealed that 83.33% and 90% of market and farm samples had psychrotrophs in the range of 10^4-10^5 and 10^3-10^4/ml, resp. (Table 3). Previous results have shown low recovery (RANDOLPH et al., 1973 and TERADA et al., 1980). The present data showed lower numbers in farm milk samples and this may be attributed to the lack of cooling on the farms. Owing to the fact that these organisms are commonly found in water supplies, the presence of these organisms in excessive numbers indicates improper cleaning of utensils and/or adulteration with dirty water.

From results in Table 1, it is obvious that the mean values of enterococcus count/ml of market and dairy farm samples were 4×10^4 and 3×10^4, resp. LONGREE (1972) mentioned that the presence of such group in milk is considered as an index of exposure to conditions that might introduce hazardous organisms. He also stated the association of enterococci with outbreaks of food-borne gastroenteritis.

Concerning populations of yeasts and molds in examined market and farm milk samples, nearly similar results were obtained. The average values were 2×10^3 and 1×10^3/ml, respectively. From the publich health point of view, many of these organisms are mycotoxin producers and often incriminated as causative agents in may infections in man and animals (STATON, 1977 and BASHIR et al., 1982).

The results achieved allow to conclude that market milk has been produced and handled under neglected hygienic measures. Therefore, appropriate measures will need to be taken

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by producers, distributors and consumers, so that all will benefit from maximum production of milk of good quality.

However, the situation is now improving through the expanded Government scheme to supply clean chlorinated water to the villages, veterinary supervision and extension service for better methods of feeding, management and milking.

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Table (1): Statistical analytical results of microbiological tests on examined market and farm milk samples.

Test	Minimum		Maximum		mean	
	Market	Farm	Market	Farm	Market	Farm
SPC /ml	4×10^5	3×10^5	2×10^{10}	2×10^8	1×10^9	4×10^7
CC /ml	7×10^2	4×10^3	9×10^6	2×10^6	1×10^6	$4z10^5$
TC /ml	1×10^3	4×10^2	3×10^5	5×10^4	5×10^4	1×10^4
PC /ml	1×10^4	8×10^3	7×10^5	5×10^5	2×10^5	1×10^5
EC /ml	5×10^2	7×10^1	3×10^5	2×10^5	4×10^4	3×10^4
YMC /ml	2×10^2	2×10^2	5×10^3	2×10^3	2×10^3	1×10^3

SPC: Standard plate count   CC: Coliform count   TC: Thermoduric count   PC: Psychrotrophic
EC : Enterococcus count   YMC: Yeast and Mold count.

Table (2): Incidence of E.coli and anaerobes in examined milk samples.

Source	No. of examined samples	E.coli		Anaerobes	
		No.	%	No.	%
market	30	21	70.0	14	46.67
farm	30	20	66.6	19	63.33

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Table (3): The highest frequency distribution of bacterial, yeast and mold counts/ml of milk samples.

Source	SPC Interval	%	CC Interval	%	TC Interval	%	PC Interval	%	EC Interval	%	YMC Interval	%
market	10^5-10^6	73.34	10^3-10^4	80.0	10^3-10^4	90.0	10^4-10^5	83.33	10^2-10^3	96.67	10^2-10^3	60.0
farm	10^5-10^6	83.34	10^3-10^4	93.33	10^2-10^3	80.0	10^3-10^4	90.0	10^2-10^3	63.33	10^2-10^3	65.0

SPC: Standard plate count   CC: Coliform count   TC: Thermoduric count   PC: Psychrotrophic count
EC: Enterococcus count   YMC: Yeast and Mold count.