قسم المراقبة الصحية على الأغذية
كلية الطب البيطري - جامعة أسوان
رئيس القسم: أ.د. توفيق المسبوني

الحالة الصحية للجبن الفريسي المصنع محليا في مدينة أسوان

أحمد عبدالحميد، مصطفى خليل، أمام عبد الحكيم

يعتبر الجبن الفريسي من منتجات الألبان الواسعة الانتشار في مصر إلا أنها عرضة للتهلول بمخلفات الميكروبات معرضة للخطر. وكذلك غالبا ما يتعرض المنتج للتهلول بسبب خسائر اقتصادية.

لذلك أجريت هذه الدراسة على عينة من الجبن الفريسي السائد في أسواق أسوان لتقريب حالاته الميكروبية. وقد وجد أن معدل العدد الكلي للميكروبات، الميكروبات البكتériية Faecal coliforms، الميكروبات البكتارية للبرودة، الميكروبات السببية المعوية إلى الكوليرا وال풍امات كما يلي:

العقول: 656, 312, 115, 31, 7, 10, 10, 9, 6, 4
عدد الكلي: 70, 58, 47, 46, 40, 35, 3, 10, 1, 10
عدد الفطر: 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

كما تم إزالة الميكروبات العصبية القولونية من 70% من عينات الجبن الفريسي المفحوصة. وجد أن الميكروبات اللاهوائية تواجدت في 4 من العينات المفحوصة.

ولقد تم مناقشة خطرة هذه الميكروبات على الصحة العامة وكذلك الشروط الصحية.

الواجب اتخاذها لتحسين هذا المنتج.
SANITARY CONDITION OF KAREISH CHEESE MANUFACTURED IN ASSIUT CITY
(With 4 Tables)

By
A.A-H. AHMED; M.K. MOUSTAFA and E.H. ABDEL-HAKIEM
(Received at 29/5/1987)

SUMMARY

A sum of random samples of kareish cheese were collected from Assiut city markets. Every sample was examined microbiologically to determine its sanitary condition. The mean value of total colony count, total coliforms, fecal coliforms, psychrotrophs, enterococci and yeast and mold counts were found to be $2.56 \times 10^4 + 4.23 \times 10^5 + 2.63 \times 10^3 + 9.35 \times 10^3 + 6.49 \times 10^3 + 1.07 \times 10^2 + 3.76 \times 10^4 + 9.35 \times 10^3 + 1.78 \times 10^2$ and $2.3 \times 10^3 + 7.04 \times 10^2/g$, respectively. E.coli and anaerobes were detected in 75 and 77.5% of the examined kareish cheese samples, respectively. The public health importance of these microorganisms, as well as, the suggested measures for improving the quality of such product were discussed.

INTRODUCTION

Kareish cheese is an excellent source of protein, calcium, phosphorus and many micronutrients. However, because of bad sanitation during processing, handling and distribution, it may be subjected to contamination with several types of microorganisms from different sources, that impair its utility and usually render the product unsafe, as well as, unsuitable for consumption.

Kareish cheese has been evaluated for total bacterial and coliforms count by MOURSY and NASR (1964), ABDEL-RAHMAN (1972), ABO-DONIA, et al. (1975), EL-BASSIONY (1975) and SHELAH (1979). Moreover, Fecal coliforms were detected in 75% of kareish cheese samples examined by ABDEL-RAHMAN (1972), while EL-BASSIONY (1975) and SHELAH (1979) reported that E.coli were existed in 28 and 24.29% of the examined kareish cheese samples respectively. The public health hazard of E.coli has been stated before by ROGERS and KEOGLER (1961), TULLOCH, et al. (1973) and FANTASIA, et al. (1975). On the other hand, psychrotrophic bacteria were existed in kareish cheese with a count of $4.4 \times 10^6/g$, as recorded by SAAD (1983), while AHMED (1977) and SHELAH (1979) reported that enterococci could be detected in kareish cheese in variable counts. Furthermore, anaerobic bacteria could be detected in 60% of kareish cheese examined by HELMY (1960), ABDEL-RAHMAN (1972) and EL-BASSIONY (1975).

On other instances, total yeast and mold could be enumerated by BDEL-RAHMAN (1972), ABO-DONIA, et al. (1975) and EL-BASSIONY (1975). Moreover, it has been recognized that total yeast and mold count could be used as indicator for proper sanitation and quality of the product (FOSTER, et al. 1957).
Therefore the main object of this study is to evaluate the hygienic quality of kareish cheese currently available in Assiut city markets.

**MATERIAL and METHODS**

A total of 40 random samples of kareish cheese were collected from Assiut city markets in clean, dry and sterile containers. The samples were dispatched to the laboratory with a minimum of delay. Preparation of samples for microbiological examination was carried out according to A.P.H.A. (1978). The prepared samples were subjected for the following examinations:

1- Total colony count (A.P.H.A. 1978)
2- Total coliforms and Faecal coliforms were performed according to MERCUFI and COX (1979).
3- Identification of E.coli according to FINEGOLD and MARTIN (1982).
4- Psychrotrophic count (A.P.H.A. 1978)
5- Estimation of enterococcus count according to ISHENBERG, et al. (1970).
7- Total yeast and mold count was carried out according to HARRIGAN and MARGARET (1976).

**RESULTS**

The obtained results are recorded in tables 1, 2, 3 and 4.

**DISCUSSION**

It is evident from tables 1 & 4 that the mean values of total bacteria, psychrotrophic and total yeast and mold counts were respectively, \(2.56 \times 10^7\) ± 4.26x10^7, 1.07x10^7 ± 2.76x10^7 and 2.3x10^6 ± 7.04x10^6/g. of examined kareish cheese samples. The highest frequency distribution of psychrotrophs and total yeast and mold was respectively 82.5 and 97.5% of the examined samples and lies within the range of \(10^7\)-\(10^8\), while 85% of the samples had a count of \(10^3\)-\(10^7\) total bacteria/g. These findings are lower than those obtained by MOURSY and NASR (1964), ABDEL-RAHMAN (1972), EL-BAISSONY (1975), SHELAHI (1979) and SAAD (1983), while lower results were reported by ABO-DONIA, et al. (1975).

Coliforms, faecal coliforms and enterococci were detected respectively in 87, 85 and 90% of the examined kareish cheese samples, with a mean value of \(2.63 \times 10^6\) ± 9.57x10^6, 1.85x10^6 ± 6.4x10^6 and 6.95x10^6 ± 1.78x10^6/g. respectively (Table 2). Most of the examined samples had coliforms ranged from 10^2-10^7/g. (Table 4). Higher results were obtained by MOURSY and NASR (1964), EL-BAISSONY (1975) and SHELAHI (1979), while GADEL-RAB (1983) recorded lower values of faecal coliforms. On the other hand, the results in (Table 3) show that E.coli and anaerobes were recovered from 75 and 77.5% of the examined kareish cheese samples respectively. Lower incidence of E.coli was reported by EL-BAISSONY (1975) and SHELAHI (1979), while anaerobes were previously detected in kareish cheese in lower percentages by HELMY (1960), ABDEL-RAHMAN (1972) and EL-BAISSONY (1975).

The presence of anaerobes and E.coli in relatively high percentage may constitute a public health hazard (LOWENSTINE, 1972). Furthermore, enterococci and E.coli are regarded...
Sanitary condition of kareish cheese

As indicative of faecal pollution, while enterococci were reported as a cause of gastroenteritis and were associated with outbreaks of food poisoning (Thomason, 1956).

In conclusion, the results of this study point out the neglected sanitary control adopted during manufacture, handling and distribution of kareish cheese. Therefore, it is advisable to obligate strict hygiene measures during preparation and handling of such product to improve its quality, as well as, to safeguard consumers against infection.

References


Table (1)

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<tr>
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<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>S.E.</th>
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<td>Total colony count</td>
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<td>9.6x10^7</td>
<td>2.56x10^7</td>
<td>4.26x10^6</td>
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<td>Psychrotrophs</td>
<td>1.01x10^5</td>
<td>9 x10^5</td>
<td>1.07x10^5</td>
<td>2.76x10^4</td>
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<tr>
<td>Yeast and mold</td>
<td>1 x10^7</td>
<td>2.3x10^5</td>
<td>2.3 x10^5</td>
<td>7.04x10^4</td>
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Table (2)

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<th>Counts/g.</th>
<th>S.E.</th>
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<tr>
<td></td>
<td>No/40</td>
<td>%</td>
<td>Min.</td>
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<td>Total coliforms</td>
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<tr>
<td>Faecal coliforms</td>
<td>34</td>
<td>85</td>
<td>6x10^1</td>
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<tr>
<td>Enterococci</td>
<td>36</td>
<td>90</td>
<td>1x10^1</td>
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Table (3)

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<td>75</td>
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<td></td>
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<tr>
<td>Anaerobes</td>
<td>31</td>
<td>77.5</td>
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### SANITARY CONDITION OF KAREISH CHEESE

#### Table (6)

<table>
<thead>
<tr>
<th>Bacteriological Count</th>
<th>Interval</th>
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<th>Yeast and Molds</th>
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</thead>
<tbody>
<tr>
<td><strong>Total coli forms</strong></td>
<td>$10^7$</td>
<td>85</td>
<td>$10^{-10}$</td>
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<td><strong>Total psychrophilic</strong></td>
<td>$10^2 - 10^4$</td>
<td>82.5</td>
<td>$10^{-2}$</td>
</tr>
<tr>
<td><strong>Enterococci</strong></td>
<td>$10^3 - 10^7$</td>
<td>77.53</td>
<td>$10^{-10}$</td>
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