

( )

(2)

(2)

(1)

( )

100

(2004-2003)

*E. coli*

)

(

%75

%43

%66

%25

%15

%12

%18

%0.28

%0.24

%53.53

%60

% 9.96

% 2.6

## Characteristics of Some Syrian Fresh White Cheeses (Baladi and Akkawi) Manufactured from Cow's Milk

Yusra Kariem<sup>(1)</sup>; Sayah Abou- Ghorrah<sup>(2)</sup>  
and Samir Slik<sup>(2)</sup>

### ABSTRACT

In this paper, we evaluated some varieties of local white cheeses (Baladi and Akkawi). 100 samples were collected randomly from various production sites in Syria between 2003 and 2004. Chemical and microbiological analyses were applied to determine their suitability to the Syrian standards. This study shows that their quality do not fulfill the set minimum Syrian quality standards. The microbiological analyses (Coliform, *Escherichia*, *Staphylococcus aureus*, and *Salmonella*), rate was 75% for Coliform organisms and 66% for *Escherichia* in Baladi, while it decreased to 43% for Coliform and 25% for *Escherichia* in Akkawi. As concerns the positive coagulation bacteria (*S. aureus*), the rate exceeded 15% for both types of cheeses. 18% and 12% of *Salmonella* were found in Baladi and Akkawi also respectively. Various types of Coliform and *Salmonella* were identified. This study indicated that local cheeses have no uniform or standardized chemical characteristics. The averages of acidity, moisture content and salt percentage were 0.24%, 60%, and 2.6%, for Baladi and 0.28%, 53.53%, and 9.96% for Akkawi, respectively. The fat content had a wide range for all cheese samples. This study classified these fresh cheeses as raw cheeses that have vast flora and no uniform chemical and quality characteristics. The above findings, lead to different defects and properties which do not fulfill the Syrian quality standards. Thus, the quality of Syrian cheeses varieties is still questionable.

**Key words:** Fresh White Cheeses, Microbiological and Chemical Analysis.

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( )

( )

%4 15  
%6  
(1993 )

) 2001 89 1991 72  
(2001

) 2001 % 89.9 1991 %93.7  
(2001

%95-80

.(2000 )

: - 1

.(Sharpe and Bramley, 1977)

(Kaplan *et al.*, 1962)

.(Beerens and Luquet,1987)

.(Marth and Steel, 1998)

.(Johnson *et al.*, 1990)

( )

60

1.7

.(Code of Federal regulations, 1995)

Cottage

) 5

(Cousin,1982)

) Enterobacteriaceae

(*Escherichia* *Enterobacter agglomerans* *Enterobacter aerogenes*

Brocklehurst ) *.Coli*

) (and Lund,1985

( ) (1988

82

%15

% 99.96

( )

%0.4

120-105

%14-9

.(1997 )

%9.5

(*S.aureus*)

%15-2.5

(*Salmonella typhi*)

16 NaCl %10

.(Fox,1993)

( )

---

*S.aureus* %50 . *E.coli* %50

*S.aureus* %10  
*S.aureus* (1998 )  
(Harvey and Gilmour, 1985)

(2000 )

7-6 37

: ) ( -  
-

*Streptococcus*, :  
. *Leuconostoc*, *Lactobacillus* , *Lactococcus*

-

-

(1 )

(*E.coli*) .1

(*S. aureus*) .2

(*Salmonella*) .3

2000/2179

(1)

(1)

		25/		5	
	$10^3$	$^2 10$	2	5	
	$10^2$	10	1	5	
	$10^2$	10	2	5	<i>E.coli</i>
	-	25/		5	
	$10^4$	$^3 10$	2	5	
	$10^3$	$^2 10$	1	5	
	$10^3$	$^2 10$	2	5	<i>E.coli</i>

.( )

: :  
:  
:  
:

: 2

( )  
(1997 )

(Early,1992) Gouda

( ) (%65-55)  
(Fox, 1993)

:2002/289

(2)

( ) %40  
% 4 ( ) % 2  
( )

- 
- 
- 
- 
- 
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:

%	
%40	
%30	3/4
%20	1/2
% 20	

( )

( )

( )	100	.2004-2003
)		(
		<b>1</b>
		.1
	37-35	.2
.° 37	( )	.3
. 45		.4
		.5
:		-
% 10-5		-
24	%15	-
	%20-15	
:	- 2	
		.1
. 105		.2
		.3

				.4
	:		- 3	
Nutrient Agar				-
		72	31	
Violet Red Bile Agar			(Coliform)	-
		48-24	° 37-31	
			( <i>E.coli</i> )	-
		48	44.5	
)				
( <i>S. aureus</i> )		<i>E.coli</i>	(	-
			Baird Parker	
		50		
48	°	37		
			( <i>Salmonella</i> )	-
		Hekton Entric Agar (HEA)	:	
- 24	37		Sulphite Bismuth Agar (BS)	
				48
		BS		
1				-
		<i>E.coli</i>		
			25	
		. 4		24

API 20E

API Staph

SPSS

:

- 1

$$\frac{. / 510 \times 6}{. / 610 \times 1.5}$$

Test Statistics - ANOVA

( - )

:

-2

× 2

$$/ 510 \times 1.5$$

$$. / 410$$

:(*E.coli*)

- 3

$$/ 410 \times 1.2$$

*E.coli*

$$/ 510 \times 1$$

(3)

:

. *Enterobacter sakazakii* *Enterobacter ammigenu* *Citrobacter*

*E.coli* (3)

<i>E.coli</i>			
$^4 10 \times 10$	$^4 10 \times 15$	$^6 10 \times 1.5$	
$^3 10 \times 12$	$^3 10 \times 20$	$^5 10 \times 6$	

Test Statistics-ANOVA

( - )  
 .spss  
 %6  
 %8  
*E.coli*

LSD%  
*E.coli* 53.1 59.7 %1 %5  
 2.8 3.9 %1 %5 LSD%

:*S.aureus* - 4  
 / 20  
 .(4) 1/ 10 *S.aureus*

*S.aureus* (4)

<i>S.aureus</i>	
10×2	
10×1	

:  
 %18 25  
 (5 ) %12  
 . *S.paratyphi B* *S. typhi* *S.paratyphi A* *S. arizona* :

(5)

%		
% 18		
% 12		

%66 %75  
 %25 %43  
 %15  
 %18  
 .(6 ) %12

*E.coli*

(6)

*S.aureus* *Salmonella*

<i>Salmonella</i>	<i>S.aureus</i>	<i>E.coli</i>		
%18	%15	%66	% 75	
%12	%14	%25	%43	

( )  
 .(2000 )

.%0.30-0.17 (7 )  
. %0.28 %0.24  
Test Statistics-ANOVA

( - )  
SPSS  
*E.coli* *E.coli*

%67-45  
%70  
%53.53 %60  
%5 -1.2 NaCl  
%2.6  
%16 % 8 NaCl  
. %9.9

.( )

%4

.%2

% 30.4

% 35.53

( ¼ ) %50

%35 %35-30

( ½ ) %26.1

%15

.%18

( )

(7)

%	%	%	%	%		
0.24	2.6	30.4	12.16	60	50	
0.28	9.96	35.63	16.56	53.53	50	

Test Statistics-ANOVA

( - )

( )

.( )

NaCl

)

100

( -

*Salmonella S.aureus*

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