

(2) (2) (1)

(-)

		2005	- 2004
58	40	245	.
	<i>Enterococcus</i>		
% 15.38	% 26.3	<i>Pediococcus</i>	%47.52
	<i>Lactobacillus</i>	%3.2	<i>Lactococcus</i>

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Detection of Lactic Acid Bacteria Isolated from Syrian Dairy Products

Ahed Abou Younes⁽¹⁾; Sayah Abou-Ghorrah⁽²⁾
and Samir Slik⁽²⁾

ABSTRACT

This research was conducted in the Agriculture Faculty- Food Science Department, Damascus University, for detecting Lactic acid bacteria isolated from Syrian dairy products (white fresh cheese-Leben), Samples were collected from August, 2004 to October, 2005 from different areas in Syria. Analysis was done for 245 bacterial isolates from 40 samples of white fresh cheese and 58 samples of yogurt (curd). Results showed that the genus *Enterococcus* was dominant with a percentage of 47.52%; *Pediococcus* had a percentage of 26.3 %; while *Lactococcus* had a percentage of 15.38% with only 3.2% for *Lactobacillus*.

Key Words: *Lactic acid bacteria*, Isolates, Detection, White fresh cheese, Leben (Yogurt).

⁽¹⁾ Ph. D. Candidate, ⁽²⁾ ¹ Associate Prof., Dep., Food Sciences, Faculty of Agriculture, P.O.Box 30621, Damascus University, Syria.

(Leisner *et al.*, 1999)
(1990)

(1997)
Hammer Baily

(1988) 1919

Hammer
1929

Van Neil

(1988)

Fryer and Rossi,)

(Rinkinen *et al.*, 2003)

(2004

(Dicks *et al.*, 1996)

(Fitzsimons *et al.*, 1999) (Non-starter)

(Fryer and Rossi, 2004)

:

: (Peterson and Marshall, 1990)
Togo *et al.*,) *Leuconostoc*, *Lactococcus*, *Pediococcus*, *Lactobacillus*
(2002

) (acetoin)
(
) (Corsetti *et al.*, 1998)
(
) (Gobbetti *et al.*, 1999)
(Dicks *et al.*, 1996)
(
)
4.9 pH NaCl %6 -4 %39
(Spicher and Schroeder, 2000) 5.3 –
(Peterson and Marshall, 1990)
(Fitzimons *et al.*, 1999) *Pediococcus*
(Spicher and Schroeder, 2000)
Tosti 2001 (Fitzsimons *et al.*, 1999)
12
Lb. %32 *Lactobacillus* 123
Lb. fermentum%9 *Lb. paracasei* %12 *b. brevis* %15 *plantarum*
2001 Medina
%48 *Enterococcus*
%8 *leuconostoc* %14 *lactococci*
(*subsp. Lactis*) *Lactococcus lactis*

%30 *Lactobacillus acidophilus* *Lactobacillus plantarum* (92%) :
 .(8%)
 2002 Tserovska
 - 18 Katyk
Lactobacillus *Pediococcus pentosaceus* *Pediococcus acidilactici*
Lactobacillus *Lactobacillus helveticus* *delbrueckii ssp. bulgaricus*
 1998 SuBmuth *.plantarum*

Enterococcus

 %94
Streptococcus %3.5 *Lactococcus*
 %1.5 *thermophilus*
 %1
 Beukes :
 15 2001

Leuconostoc %83 *Leuconostoc*
Leuconostoc *Leuconostoc lactis mesenteroides subsp. dextranicum*
Lactococcus *Lactococcus* %15 *citreous*
Lactobacillus *lactis subsp. lactis*
 Guessas 2004 *.Lactobacillus plantarum* %1
 Kihal

 %76.16 *Lactococcus*
 %8.6 *Leuconostoc* *Lactococcus lactis subsp. lactis*
 %14.78 *Streptococcus thermophilus*
Lactobacillus curvatus Kihal Guessas
 .%10.98 *Lb. helveticus* %25.25
 1998 SuBmuth
 %95 *Enterococcus*
Lactococcus
 . %2

Lactococcus

1999

Gaya

%32.3

Lactococcus

%23.4
. %8

(-)

)) 58 (40
) (

2005 2004
:(Revol and Herbin, 1999)

1 1 1

9

%2)
1 8.5 1

(

⁷-10

⁻² 10

¹-10

1
48 31 72 42
- MERCK M17
Streptococcus 2

72 37
- MERCK M.R.S
Lactobacillus 3
(CO₂) 1

24 37
M.R.S 4
MRS
M.R.S

M17

M17
24

.(Guessas and Kihal, 2004)

5

.(Harrigan and McCance, 1976)

45 10 (0.1)
%6.5 %4 NaCL .(Sharpe, 1979)

(Thomas and Pritchard, 1997) 5

(Kempler and McKay, 2003) (Simon citrate agar)

Samelis *et al.*,) Voges – Proskauer

.(1994

Streptococcus API 20 Strep 6
 API 50 CHL M17 Leuconostoc
 BioMérieux— MRS Pediococcus Lactobacillus

) 245
 (98
 147
 67 71 28 : 98
 29 51
 73 45 50 30
 (1) 10 40
 (1)

65	32	1		
+	+	+		
-	-	-		
-	-	-		
41	28	-	CO2	
55	17	1	10	
35	15	-	45	
52	19	1	4	%NaCl
37	-	-	6.5	
38	12	1	VP	
65	30	1		
47	15	-		
60	18	1		
43	23	1		
17	12	-		
17	13	-		
23	8	-	%1	24 %
42	24	1	%1	
28	-	-		
38	32	1		

Enterococcus %78 %66.33
 (%21) *E. faecalis* (%57) *E. faecium*
 %15 *Lactococcus*
Streptococcus *L. lactis subsp. cremoris*
 %7 *thermophilus*
 (%32.65)
P. pentosaceus *Pediococcus*
 % 1.02
Lb. paracasei subsp *Lactobacillus*
 (2) *. paracasei*
 40

(2)

1.02	32.60	66.33	%

1998 SuBmuth

(%94) *Enterococcus*

%1)

2001 Medina (

Enterococcus

%30) (%48)

.(

58 147
110 37

32 109 42 81

105 45 103

(3) 10
58

(3)

82	58	7		
+	+	+		
-	-	-		
-	-	-		
43	15	-	CO2	
55	49	7	10	
48	55	-	45	
82	58	7	4	%NaCl
62	17	-	6.5	
48	28	5	VP	
85	58	7		
35	28	-		
70	43	7		
63	39	7		
22	17	3		
18	13	1		
30	7	-	%1	24 %
52	51	7	%1	
37	-	-		
45	58	7		

%70 % 55.78

E. Enterococcus
 % 25 *Lactococcus faecium*
L. lactis subsp. cremoris %17 *L. lactis subsp. lactis*
Streptococcus thermophilus %5 (%8)

Pediococcus %39.46
P. pentosaceus

%4.76
Lb. delbrueckii subsp lactis *Lactobacillus*
 (4)
 58
 (4)

4.76	39.46	55.78	%
------	-------	-------	---

1998 SuBmuth

(%95) *Enterococcus*
 Beakers (%2) 2001
 .(%1)

Pediococcus
 (147) % 36.46

1999 Fitzsimons
Pediococcus
 .2002 Tserovska

(5)
 58
 58 (5)

1:1	10.34	6
2:1	31.04	18
1:3	51.72	30
1:2	6.9	4

(5)
 1:3

(Sodini *et al.*, 2004) 10 – 4

)

(1994

.(Salminen and Wright, 1993)

(6)

(7)

2004

2005

:

2004

:

2005

2004

2005

:

.2005

:

2005

(6)

5	4	3	2	1	
*	*	*	*	*	<i>Enterococcus</i>
	*	*			<i>Lactococcus</i>
	*	*			<i>S.thermophilus</i>
	*	*	*		<i>Pediococcus</i>
		*			<i>Lactobacillus</i>

*

(7)

5	4	3	2	1	
*	*	*	*	*	<i>Enterococcus</i>
	*	*			<i>Lactococcus</i>
	*	*			<i>S.thermophilus</i>
	*	*	*		<i>Pediococcus</i>
		*			<i>Lactobacillus</i>

*

Enterococcus (7-6)
Pediococcus

Lactococcus *S.thermophilus*
Lactobacillus

(9) 98 (8)
147

(8)

<i>Lactobacillus</i>	<i>Pediococcus</i>	<i>S.thermophilus</i>	<i>Lactococcus</i>	<i>Enterococcus</i>	
1.02	32.65	4.6431	9.9495	51.7374	%

(9)

<i>Lactobacillus</i>	<i>Pediococcus</i>	<i>S.thermophilus</i>	<i>Lactococcus</i>	<i>Enterococcus</i>	
4.76	39.46	2.789	13.945	39.046	%

245 (10)

(10)

<i>Lactobacillus</i>	<i>Pediococcus</i>	<i>S.thermophilus</i>	<i>Lactococcus</i>	<i>Enterococcus</i>	
3.2	26.3	7.6	15.38	47.52	%

Enterococcus (10)
Pediococcus (245)
%7.6 *S.thermophilus* *Lactococcus*
Lactobacillus

Mstatc

%1 %5

(-)

2005

2004

(7)

()

(11)

. %1 % 5

(11)

LSD			F				
%5	%1						
			24.8	1440	28805	1	
12.4	19.5	**	11.6	915	45783	4	
11.6	17.2	**	42	135	1253	4	
				1.38	58	20	

(Hammes *et al.*, 1999)

(De Angelis *et al.*, 2001)

Enterococcus

Pediococcus

S.thermophilus

(Medina *et al.*, 2001)

Lactococcus *Pediococcus*

Pediococcus

Lactococcus.(Gaya *et al.*, 1999)*Lactobacillus*(Rinkinen *et al.*, 2003) *Enterococcus**Leuconostoc*. (Togo *et al.*, 2002)

- 1

.Pediococcus Enterococcus

- 2

*Streptococcus**.Lac. cremoris Lactococcus lactis thermophilus*

- 3

- 4

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- .72-69 .(1997) .
.329 – 324 .(1988) .
.46-33 .(1994) .
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