

() , ()

UF

*

(// : // :)

UF

UF

ADV () ()
Excel MatLab) NPN PH4/6-SN ()

Q₁₀ ADV TCA/SN TCA/TN
SN/TN / / /

Q₁₀ :

Alborzi,

(2001)

(Mortazavi *et al.*, 1995)

(Afshar, 2004)

(Hesari, ()
 .2005)

.(Alizadeh, 2006)



()

pH

CO2

.(Farahnoodi, 2002)

UF

β

UF

α_{s2}

UF

.(Bech , 1993)

$$[(s) - (s_0)] = kt - kt_0 \quad ($$

$$\ln(s) - \ln(s_0) = kt - kt_0 \quad ($$

.(Boekel & Tijssens , 2001)

$$k = k_o \exp\left(\frac{-E_a}{RT}\right) \quad ($$

R (kJ/kg)

E_a

(K) T (8.314 kJ/kmol K)

.(Gaya *et al.* 1990)

-
1. Slurries
 2. Encapsulated

... :
 E_a
 Q_{10} Q_{10}
 UF
)
)
 $Q_{10} = e^{\left[\frac{10 * E_a}{RT_1 T_2} \right]}$
 (°C
 (1997) Zorrilla & Rubiolo
 pH
 (A.O.A.C., 1984) α_s
 (2005) Sihufe *et al.*,
 β NaCl KCl
 ()
 (/) / /
 (/))
 (TN) : kcal/gmol °C
 () NPN pH4/6-SN (2003) Sihufe *et al.*
 (/) / / α_s
 Kuchroo & Fox pH=4.6 kcal/gmol
 (NPN)
 ()
 TCA)
 (/)
 UF
 (1986) Nunez *et al.* (ADV) ()

UF

()

$$ydata = x_1(xdata) + x_2 \quad ($$

$$ydata = x_1 \exp(x_2 \times xdata) \quad ($$

$$ydata = x_1 \exp(x_2 \times (xdata)^{x_3}) \quad ($$

A_0 E_a

()

ydata xdata
x₃ x₂ x₁

x₂ x₁

()

RMSE

LSQCURVEFIT

MATLAB

A_0

W F₀ F₀ W

() ()

A_0

ADV SN/TN

(F₀)

RMSE

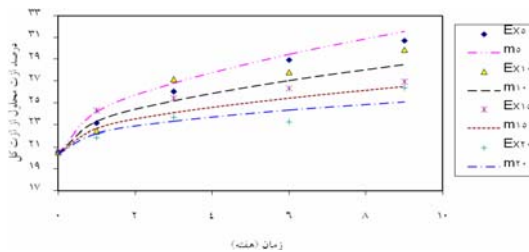
()

1. Root mean square error

pH

/ ± / ± / / ± / / ± / / ± / (%)

X	X	X	X	X	X	X	Ea	SN/TN
/	/	/	/	/	/	/	A_0	
/ ×	/	/	/ ×	/	/ ×	/	A_0	NPN/TN
/	/	/	/	/	/	/	A_0	NPN/SN
/ ×	/	/	/ ×	/	/	/	A_0	ADV



RMSE -

ADV		NPN/SN		NPN/TN		SN	
Ex	W	Ex	F1	Ex	F0	Ex	F0
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/

:Ex

:F1

:F0

:Ex

(

:m

:W

E_a

Q_{10}

(2005) Sihufe *et al.*

NaCl

KCl

β

/ /

(/)

kcal/gmol °C

(Sihufe *et al.*,

/ /

α_s

2003)

kcal/gmol

(/)

TCA/SN TCA/TN SN/TN

SN/TN / /

TCA/TN

/ /

ADV

TCA/SN

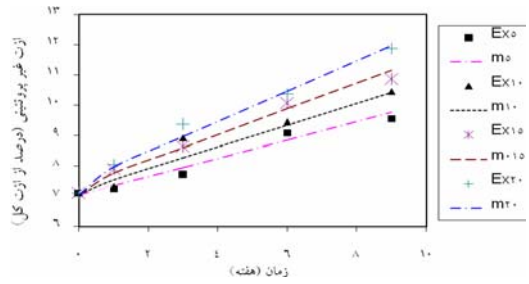
Q_{10}

()

TCA ADV

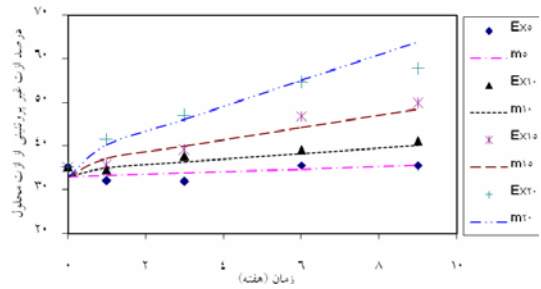
SN/TN

	ADV	TCA/TN	SN/TN	TCA/SN
E_a	'	'	'	'
Q_{10}	'	'	'	'

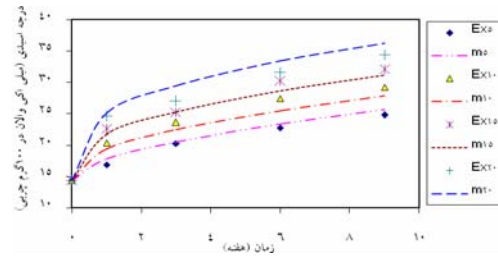


:Ex)

(m



(m :Ex)



:Ex)

(m

	ADV	TCA/TN	SN/TN	TCA/SN
'	'	'	'	'
'	'	'	'	'
'	'	'	'	'

SN/TN

X_1

()

(Castilloa *et al.*, 2006)

	: Q ₁₀				
(8.314 kJ/kmol K)	:R	Q ₁₀			
(K)	:T	SN/TN			
	: ADV		ADV	NPN/SN	NPN/TN
(%)	: NPN/TN				
(%)	: NPN/SN	SN/TN			
Root mean square error : RMSE					
(%)	: SN/TN		(kJ/kg)		:E _a

REFERENCES

A.O.A.C. (1984). *Official Method of Analysis of Association of Analytical Chemists*, 14th ed., Published by Association of Official Analysis Chemists, INC., Virginia, USA.

Afshar, S. (2004). *Survey the Effects of somatic cells on the physical and chemical properties of UF and traditional cheese*, M.Sc. thesis , Faculty of Agriculture, Tabriz University (In Farsi)

Alborzi, S (2001). *Survey of effective factors in enhancing the hygienic quality of UF cheese with an emphasis on fungal contamination*, M.Sc. thesis , Faculty of Agriculture , Shiraz University (In Farsi)

Alizadeh, M. (2006). *Optimization of the chemical and sensorial quality indices of Iranian white brine cheese using response surface methodology*. Ph. D. dissertation, University of Tehran, Iran.

Bech, A. M. (1993). Characterizing ripening in UF-Cheese. *International Dairy Journal*, 3,329-342.

Boekel M.A.J.S. & Tijskens L.M.M. (2001). Kinetic modelling. In Tijskens L.M.M., Hertog MLATM & Nicolai B.M. (Eds.), *Food Process Modelling*. CRC Press, New York.

Castilloa, M., Luceya J.A., Wanga T. & Payne F.A. (2006). Effect of temperature and inoculum concentration on gel microstructure, permeability and syneresis kinetics. Cottage cheese-type gels. *International Dairy Journal*, 16, 153–16.

Farahnoodi,F. (2002). Cheese technology, Iran Dairy Co. (in Farsi)

Gaya, P., Medina, M., Rodriguez-Marin, M.A. & Nufiez, M. (1990). Accelerated ripening of ewes' milk Manchego cheese: the effect of elevated temperatures. *Journal of Dairy Science*, 73, 26-32.

Hesari, J. (2005). *Effective factors on the kinetics of proteolysis of ultrafiltrated Feta cheese*. Ph. D. dissertation, University of Tehran, Iran.

Kuchroo, C.N. & Fox, P.F. (1982). Soluble nitrogen in Cheddar cheese: comparison of extraction procedures. *Milchwissenschaft*, 37, 331-335.

Mortazavi,A., Ghods Ruhani, M. & Juyandeh, H. (1995). *Dairy technology*, Mashad Yniversity (in Farsi)

Nunez, M., Garcia-Aser, C., Rodriguez-Martin, M.A., Medina, M. & Gaya, P. (1986). The effect of ripening and cooking temperatures on proteolysis and lipolysis in Manchego cheese. *Food Chemistry*, 21, 115-123.

Sihufe, G. A., Zorrilla, S. E., & Rubiolo, A. C. (2003). Casein degradation of Fynbo cheese salted with NaCl/KCl brine and ripened at various temperatures. *Journal of Food Science*, 68(1), 117–123.

Sihufe, G. A., Zorrilla, S. E., & Rubiolo, A. C. (2005). Kinetics of Proteolysis of β-Casein during Ripening of Fynbo Cheese Salted with NaCl or NaCl/KCl and Ripened at Different Temperatures. *Journal of Food Science*, 68(1), 117–123.

Zorrilla S.E., Rubiolo A.C. (1997). Kinetics of casein degradation during ripening of Fynbo cheese salted with NaCl/KCl brine. *Journal of Food Science*, 62(2), 386–9.