

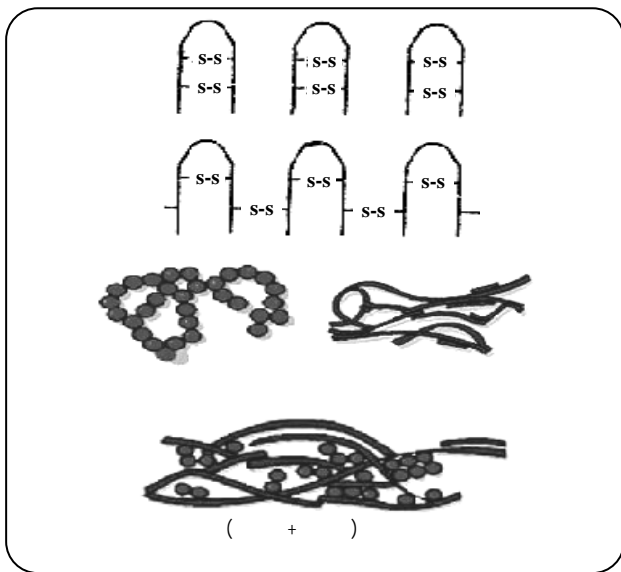
+*

6

KEY WORDS: *Wheat gluten protein, Edible film, Permeability, Mechanical properties.*

[]

[]



[]

α β γ
(SS)
[]
 ω

pH

ساختار دوم آلفا و بتا و گاما گلیادین‌ها شامل ماریچج آلفا ۳۰ تا ۳۵ صفحه‌ی بتا ۱۰ تا ۲۰ است ولی امگا گلیادین شامل گردش بتا بوده و فاقد ساختار ماریچج آلفا و صفحه‌ی بتاست. گلیادین‌ها کشش‌پذیری بالا و مقاومت به کشش (الاستیسیته) پایینی دارند.

گلوٹنین ترکیب اسیدآمینهای مشابه گلیادین داشته (غنی از پرولین و گلوٹامین) ولی میزان اسیدهای آمینه آب‌گریز در آن به نسبت کم‌تر از گلیادین است. گلوٹامین بالا موجب تشکیل پیوندهای هیدروژنی بین زنجیری وسیعی می‌شود.

() Osborne

)
() ()
(/ /) () ()
()

() ()
() ()

[] ()

((W/W) (W/W))
:

(g/ g)

(g/ g)

g/ g ()

pH

(¹) (SDS-PAGE)

(KDa) KDa

α pH

ω γ β

ω

() Sodium dodecyl sulfate polyacrylamide gel electrophores

[] ()

pH (/ g/ g)

() pH
[]

(WVP) ()
WVP [] []

(RH)
RH
RH = °C ()
WVP RH = []

[]
[] () " pH

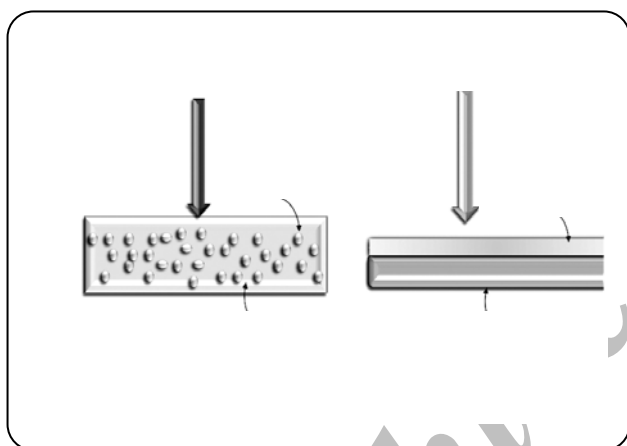
pH ()
[] WVP

[]
()

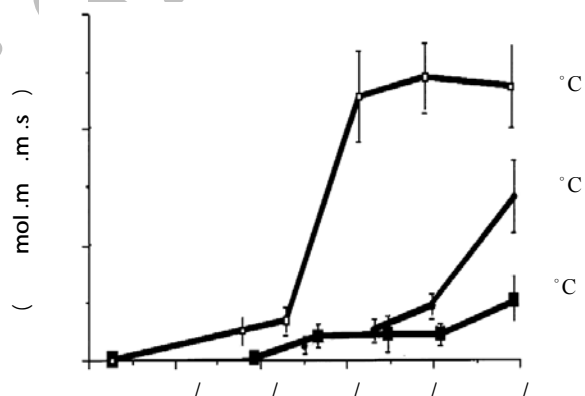
-
- () Kayserilioglu
 - () Internal lubricant
 - () Gontard
 - () Puncture strength
 - () Water vapor permeability

[] (WVP)

() RH	(mm)	(°C) T	WVP (mol/m.s.Pa)	
/	/			
/			/	
/	/		/	
/	/		/	
/	/		/	
/	/		/	
/	/		/	
/	/		/	
/	/		/	
/	/		/	()
/	/		/	



[]



(a_w)

[]

(WVP) (W/W) .()

[]

WVP (W/W) /

WVP

() / × mol/m.s.Pa / ×

[]

WVP

pH

: pH

pH

WVP

[] WVP

WVP

(mm)	T (°C)	WVP (mol/m.s.Pa)	
/		/	
/		/	/ ()
/		/	/ ()

[] [] () WVP
WVP pH

[] ()

CO

N

[]

[] ()

WVP : RH

WVP

RH

WVP

RH

kGy

RH

[] ()

WVP

RH

[] () CO O

LDPE

CO
LDPE

RH

[] ()

WVP

[] ()

RH

WVP

RH

() Genaadioes

() Quattara

() Lee

() Mastromatteo

...

[]

	O (mol/s.m.Pa)	CO (mol/s.m.Pa)	RH (%)	(°C)
/			/	
/			/	
/			/	
/			/	
/			/	
/			/	
/			/	
/			/	
/			/	
/			/	
/			/	
/			/	

[]

CO (mol.m/m.s.Pa)	O (mol.m/m.s.Pa)	
	/	EVOH
/	/	
/	/	
	/	
/	/	
/	/	
/	/	PET
	/	PVC
		/MC
		/MC
		LDPE
		MC/PEG

CO

CO

RH

CO

() CO

)

RH

/

[]

(O CO

O CO

RH

[]

RH

RH

O

CO

()

(O

CO

)

() Cooling injury

[]

WVP

pH

WVP× (g/m.s.Pa)	E (%)	TS (MPa)	pH
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	

[] RH=

()	(Mpa)	
/	/	
/	/	
/	/	
/	/	
/	/	
/	/	
/	/	(pH =)
/	/	(pH =)
/	/	
/	/	

()

[] () ()

LDPE

()

(UTS) ()
()_(TS)

(ETB) ()

[]

[]

(TS)
[] ()

() Debeaufort

() Voilley

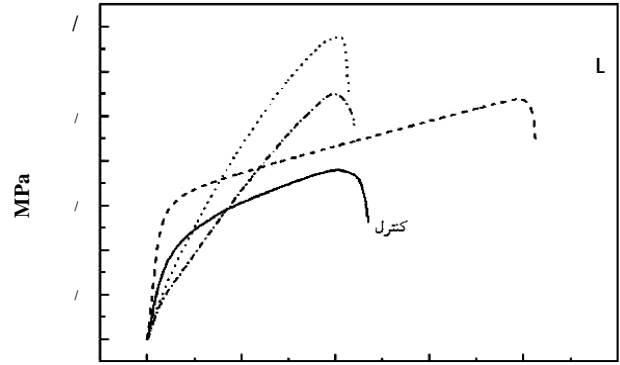
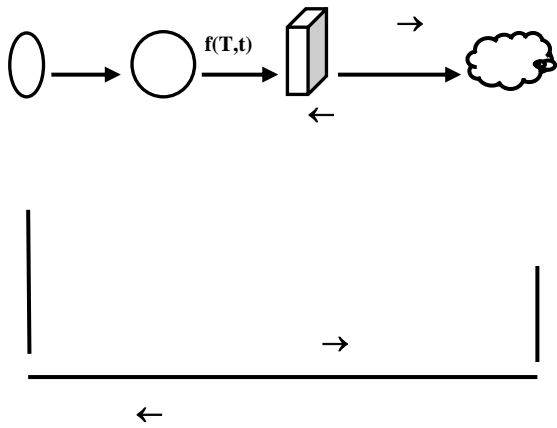
() 1-octen-3-ol

() Elongation to Break

() Tensile test

() Tensile strength

() Ultimate tensile strength



()

[]

kGy

[]

()

[]

MPa

[]

()

[]

L

δ

L

()

(T_g)⁽¹⁾

(kGy)

()

() TS

()

T_g

- () Sun
- () MHernandez-munoz
- () Glass transition temperature
- () Rubber

[]

DMTA DSC [] () (T_g) T_g

(: g/g) (~ / °C) (~ °C) Tanδ : [] T_g

T_g

T_g T_g

T_g

T_g (: :) (: :)

T_g

[] ~ °C

T_g []

T_g

T_g

WVP

()

OH

(NMR)

(DSC)

T_g

(DMTA DMA)

()

DSC []

(: :)

DMA

(~ °C)

~ °C

DSC

T_g

T_g

DMA

T_g

T_g

G'

سایزری بیشتر از ساکارز و کم تر از گلیسرول بودند و با حفظ ویژگی‌های خوب مکانیکی WVP کم تری نسبت به فیلم‌های حاوی گلیسرول نشان دادند [۳۵].

T_g

[] ()

(Tanδ)

(G')

T_g

[]

()

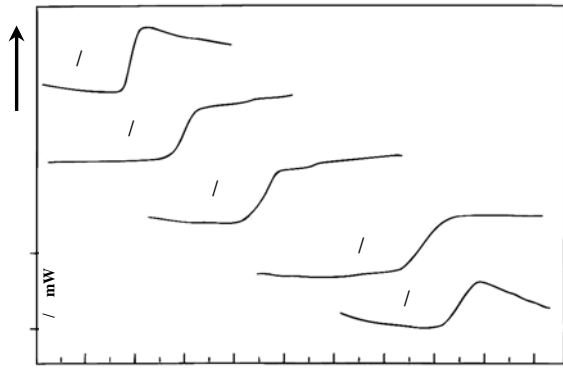
() Differential scanning calorimetry

() Noel

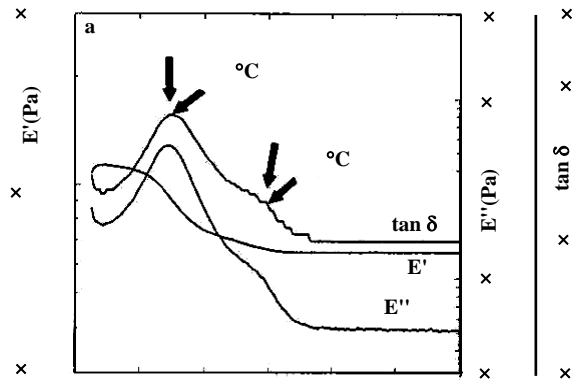
() Dynamic mechanical thermal analysis

() Cherian

() α Relaxation



(k)



DSC
[] (/ /)

(: g/g) DMTA
[]

Tanδ

[] ()

T_g

()_{DMTA} ()_{DSC}

T_g

DMTA

T_g

T_g

E'

pa

L

[]

T_g

T_g

E'

DMTA

[]

DSC

L

[]

DMTA

() Ring

() Dynamic mechanical thermal analysis

() Differential scanning calorimetry

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