

Marination 조건이 돈육 육포 제조용 양념육의 품질 및 최종 제품의 관능적 특성에 미치는 영향

1 . 2 . 1 . 1 . 1 . 1 . 3 . 1 . 1*
1 , 2

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The Effects of Marination Condition on Quality Characteristics of Cured Pork Meat and
Sensory Properties of Pork Jerky

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Abstract

The purpose of this study was to investigate the effect of marination condition (immersion and tumbling) on quality characteristics of cured pork meat and sensory properties of pork jerky. Pork meat was immersed for 1, 6, 12, 24, and 48 hours or tumbled for 10, 20, 30, and 60 minutes with curing solution. The jerky was made from cured pork meat, immersed for 6, 12, 24, and 48 hours or tumbled for 10, 20, 30, and 60 minutes. The curing yields and water holding capacity in immersion and tumbling treatments were increased as marination time increased, and the curing yields of tumbling treatments were higher than those of immersion treatments, but water holding capacity was not. The pH value of all treatments were not significantly different. CIE L* and b*-value of immersion treatments were significantly decreased as marination time increased, but CIE a*-value were increased. Objective color of tumbling treatments showed a similar tendency with those of immersion treatment. The sensory properties of pork jerky were not significantly different between immersion and tumbling treatments.

Key words : pork jerky, tumbling, immersion, sensory evaluation

(Bocksch, 1965; Pegg et al., 2000),

가 drum

paddle

(Goutefongea, 1992).

(Bowen, 1974),

(Watts, 1954)

,

가

가

,

(Lawlis et al., 1992),

(Ghavimi et al.,

1987),

(Pietrasik and Shand, 2004), 가

가(Bedinghaus et al., 1992)

(Kim et al., 2003)

가 가

가

, 가

(Yang et al.,

1998),

(Ponting et

가

(Lee and

al., 1966),

Park, 2004; Park and Lee, 2005; Pegg

et al., 2006).

Farouk

Swan(1999)

(Choi et al.,

1997),

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marination

1
 (M. biceps femoris, M. semitendinosus,
 M. semimembranosus) 4
 - 1 ~ - 2 가
 slice(6~8 mm)
 S
 H sodium chloride
 O , C S
 D
 ginger, garlic, onion powder, sodium
 citrate, potassium sorbate, sodium
 erythorbate O black pepper
 , D sodium nitrate
 C soup stock powder

Marination
 (1997)
 recipe

Marination
 가 3
 1
 1, 2, 3, 6, 9, 12, 24, 48
 (Kim
 et al., 2003) 가 1
 (Type MGH-20, Vackona,
 Spain) 0.75 bar,
 25 rpm
 10, 20, 30, 60

Fig. 1
 6, 12, 24, 48
 10, 20, 30, 60
 (Enex-CO-600,
 Enex, Korea)

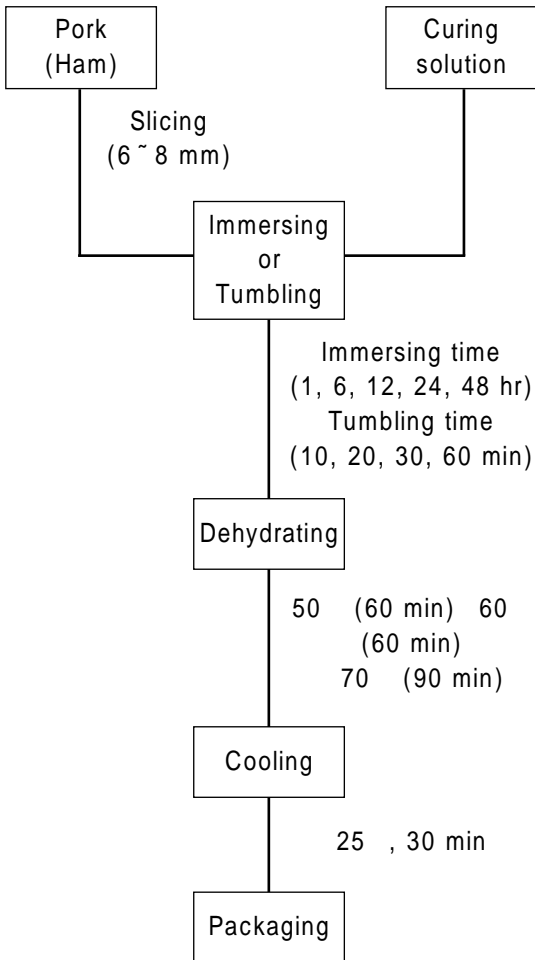
Marination

, 50 (60) 60 (60)
) 70 (90) 3 30
 . 25 30
 polyethylene bag

1)
 (1, 2, 3, 6, 9, 12, 24, 48)
 (10, 20, 30, 60)

가

(%)



2) pH

pH 5 g 20 mL

Ultra Turrax (Model No. T 25, Janken and Kunkel, Germany)

8,000 rpm 1

pH meter(340, Mettler Toledo GmbH, Switzerland)

3) (Water-Holding Capacity)

Grau Hamm(1953) filter paper press

plate (Whatman No. 2)

300 mg

plexiglass plate 1

3

planimeter(Type KP-21, Japan)

(%)

Fig. 1. The diagram of pork jerky manufacturing.

4) Color

Colorimeter(Chromameter
 , CR210, Minolta, Japan)
 (lightness) CIE L* - ,
 (redness) CIE a* -
 (yellowness) CIE b* -
 L* -
 +97.83, a* - - 0.43 b* - + 1.98

Table 1. Properties of raw pork meat

Traits	Raw pork meat
pH	5.62±0.061)
CE	L* 53.32±2.69
	a* 13.62±1.66
	b* 4.78±0.94
Water holding capacity (%)	42.82±2.24

¹⁾ All data is mean±SD.

5)

marination
 (3×3 cm)
 , , , ,
 10 (1 = , , ,
 ; 10 = , ,
 ,)

6)

SAS program(Statistics
 Analytical System, USA, 1999)
 GLM(General Linear Model) procedure
 ,
 Duncan
 (p<0.05)

Table 1

pH 5.62 , color CIE L*,
 a*, b*- 53.32, 13.62, 4.78
 , 43%

Fig. 2

가

22% 가
 (p<0.05). 10
 19% 가 30
 25% 가
 , 30 60
 . 30
 48
 3% ,
 (Ockerman and
 Organisciak, 1978; Rust and Olson,
 1973), 가(Kim et al.,
 2003; Plimpton et al., 1991)
 가
 가 Kim (2003)

Fig. 3

1
 49.6% 6
 (51.6%)
 12
 가
 48 가 57.7% 가
 (p<0.05).
 10 20
 가
 pH
 (Wierbicki, 1957), Kim (1994)

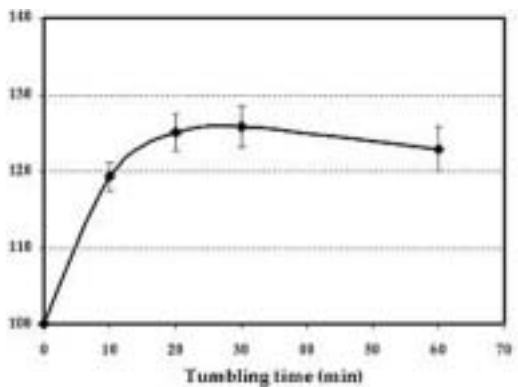
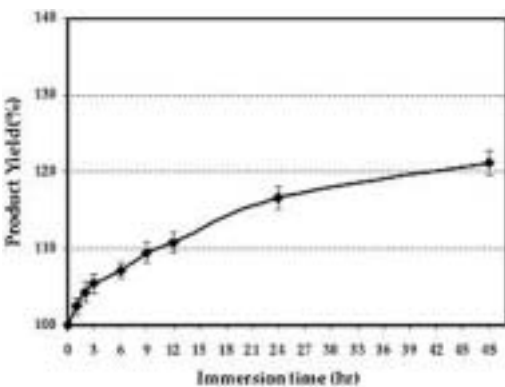


Fig. 2. Effect of curing condition1) on curing yield of pork meat with curing solution.

1) Immersion condition : Each treatments were individually immersed for 1, 2, 3, 6, 9, 12, 24, 48 hr after marinated for 3 min by hand.

Tumbling condition : Each treatments were individually tumbled for 10, 20, 30, 60 min continuously at a rate of 25 rpm, 1 .

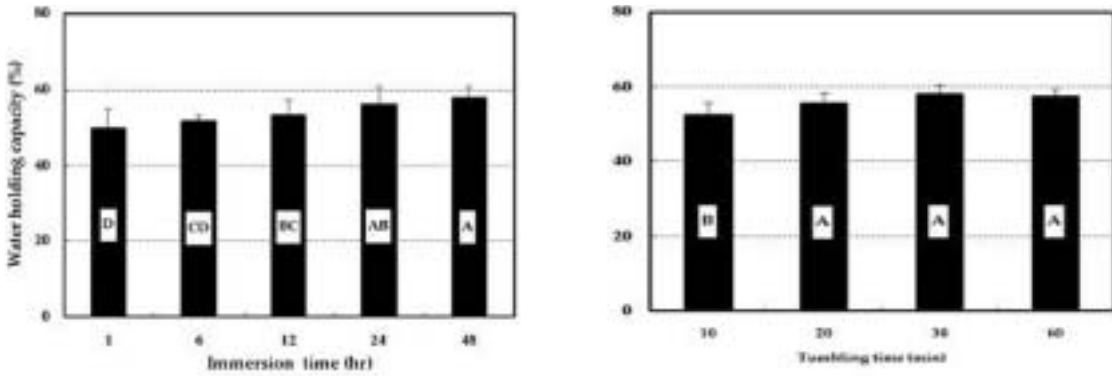


Fig. 3. Effect of curing condition1) on water holding capacity of cured pork meat with curing solution.

1) Immersion condition : Each treatments were individually immersed for 1, 6, 12, 24, 48 hr after marinated for 3 min by hand.

Tumbling condition : Each treatments were individually tumbled for 10, 20, 30, 60 min continuously at a rate of 25 rpm, 1 .

A~D Means with different superscripts within the same curing condition are significantly different (p<0.05).

drumstick
가

pH
Kim (2003)

pH가

pH color
, Choi Lee(2002)

Table 2

pH color

pH L* b*
가

(p>0.05), 48 L* 24 48 가 가
(p<0.05), b*- 48

가 가

가 60 (p<0.05). a*-
가 48

Marination

Table 2. Effects of curing condition1) on pH and color of cured pork meat with curing condition

Traits	Immersion time (hr)					Tumbling time (min)			
	1	6	12	24	48	10	20	30	60
pH	5.68±0.05 ^B	5.69±0.04 ^B	5.70±0.04 ^B	5.71±0.02 ^{AB}	5.75±0.07 ^A	5.68±0.06	5.69±0.06	5.68±0.08	5.71±0.04
CE	L* 43.57±3.01 ^A	43.11±1.51 ^A	40.30±2.94 ^B	38.53±3.02 ^C	38.00±1.83 ^C	44.45±1.98 ^A	42.72±1.98 ^B	42.19±2.19 ^B	41.88±1.72 ^B
	a* 10.41±1.01 ^E	11.90±0.55 ^D	12.62±1.02 ^C	13.36±0.67 ^B	14.10±0.60 ^A	13.01±0.76 ^B	13.17±0.90 ^{AB}	13.56±0.98 ^A	13.66±0.85 ^A
	b* 11.32±1.86 ^A	11.21±1.44 ^{AB}	10.25±1.23 ^B	9.72±1.41 ^C	8.09±1.60 ^D	14.53±1.45 ^A	13.88±0.85 ^{AB}	13.80±1.74 ^B	13.65±1.74 ^B

¹⁾ Immersion condition : Each treatments were individually immersed for 1, 6, 12, 24, 48 hr after marinated for 3 min by hand.

Tumbling condition : Each treatments were individually tumbled for 10, 20, 30, 60 min continuously at a rate of 25 rpm, 1 .

^{A-E} Means with different superscripts within the same curing condition are significantly different (p<0.05).

가 (2003) 가
 L* - b* - 30
 가
 , a* -
 가

(Jin et al., 2005), Kim

Table 3

Table 3. Effects of curing condition1) on sensory evaluation of pork jerky

Traits	Immersion time (hr) ¹⁾				Tumbling time (min)			
	6	12	24	48	10	20	30	60
Color	6.86±0.53B	7.29±0.61AB	7.43±0.65A	7.43±0.65A	7.14±0.66	7.29±0.73	7.36±0.50	7.29±0.61
Flavor	7.43±0.51	7.14±0.36	7.43±0.76	7.43±0.76	7.29±0.47	7.29±0.61	7.57±0.65	7.57±0.51
Texture	6.71±0.47	6.71±0.73	7.14±0.66	7.21±0.70	7.14±0.66	7.21±0.70	7.64±0.74	7.57±0.76
Juiciness	6.64±0.63B	6.86±0.53B	7.43±0.51A	7.43±0.65A	7.50±0.52	7.57±0.65	7.71±0.61	7.86±0.53
Overall acceptability	7.14±0.66	7.07±0.62	7.43±0.65	7.50±0.76	7.86±0.77	7.93±0.83	8.00±0.68	7.93±0.73

¹⁾ Each jerky were dried using cured pork meat immersed for 6, 12, 24, 48 hr, individually.

²⁾ Each jerky were dried using cured pork meat tumbled for 10, 20, 30, 60 min, individually.

All treatment's jerky drying condition : 50 (60 min) 60 (60 min) 70 (90 min)

^{A-B} Means with different superscripts within the same curing condition are significantly different (p<0.05).

가 6, 12, 24, 48
가 10, 20, 30, 60
. 24
48
가 , 가
가 . ,
가 .
pH
, L*- b*-
가
가 a*- 가 .
(turkey roll) 가
(Lemos , 1999),
(Barbanti and Pasquini,
2005) (Krause, 1976) 30
가 가 . ,
,
.
marination
2004
(: 204118-02-1-CG000)
. 1, 6, 12, 24, 48
10, 20, 30, 60
marination 가

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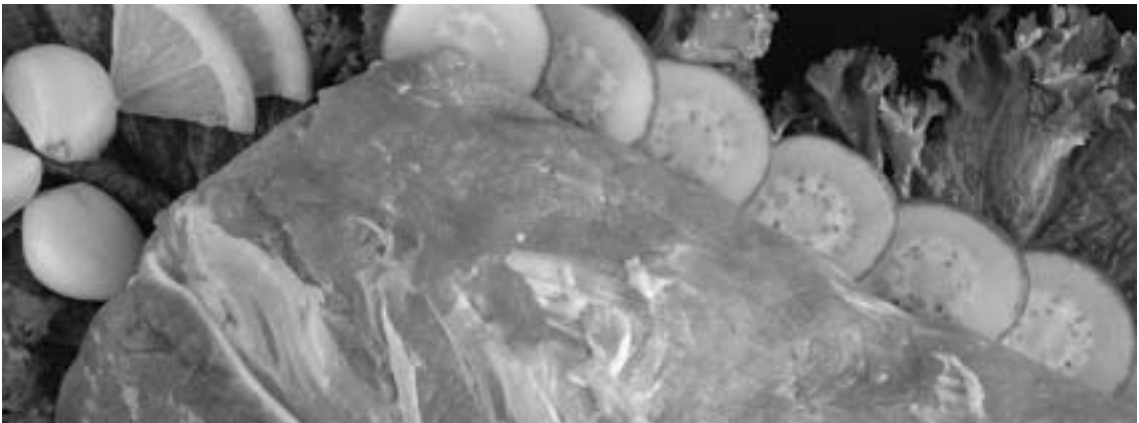
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