



*

*

가
“ ()
가 가

1.

200 가 16
8

10, 20

1740) 가 20 91 1,679
(3,408 \$) 97 3,146(6,636 \$)
(, 1800) 2

가
가,
가

sauce 가 tomato paste
 gum (xanthan gum) 가 ,
 herb spice
 가 .

sauce가 .
 tabasco, chili hot sauce

가 sauce .
 , , ,

sauce .
 2.
 2.1 가
 , , , Marsh
 , , , 20
 , , , 30
 (cm) .
 paste Hunt

2.2 5)
 HAAKE HAAKE Visco-meter Rotovisco
 RC 20
 1) Herschel
 -Bulkley .

$$\tau = k \cdot \dot{\gamma}^n \quad (n < 1)$$
 (Pa) ,
 2) (pa) , (l/s), n , k

(Pa · sⁿ)

Herschel- Bulkley

6)

Hunter Lab Spectrocolor meter Color Q
USET ()

가

7)

10

5

7

90%

8)

, ()

()

가

?

70%

9)

Foodex Japan

FMI

, LA

Hispanic

가

?

3.

3.1

가 가

1)

?

20

가

가

50%,

20

40

30

가

가

30%

가 , ,
 (=) (=)
 , 가 , 80%
 () 20% Tabasco
 chili sauce
 90% 1 3 50%,
 1-3 가 50% .
 가 55.5%, 가 44.4%
 77.8%, 가
 66.7%, 가 88.9%, 가 100%, 30%가 (no problem)
 44.4% (too heavy), 30%
 77.8%가 fried chicken, bacon, ,
 , fried chicken
 가 66.7%,
 가 77.8%, 가 66.7%, 66.7%, 50%
 가 100%, 가 66.7%
 55.6%가 steak 가 가
 가 가
 53% Fried
 fried chicken fast food chicken 29% ,
 10%
 가
 90%
 fried chicken, barbecue, ham-
 burger 가 65%,
 82%, 가 80%, 가
 75%, 70%, flavor
 가 50%, 가 50%
 2) 가
 , , ,
 20 40
 30 3.2
 90%
 sauce

1) citric acid, lactic acid, acetic acid, oxalic acid, formic acid
 CMP가 42.90 ± 28.26 mg% hypoxanthin 6.86 ± 3.45 mg%, IMP 5.59 ± 5.84 mg%, inosine 4.58 ± 6.91 mg%, GMP 3.36 ± 3.93 mg%
 가 가 . 1999 20
 44% pH 4.5
 15.77 8.76%
 132 mg% 1.86 ± 1.01%,
 4.29 ± 2.06%, 0.54 ± 1.21% 1.48 ± 0.77% 2)
 linoleic acid가 ()
 59.37% (1998)
 proline, (1) Tabasco sauce
 glutamic acid, aspartic acid, serine, lysine 가
 histidine methionine chilli , tomato paste, 가
 9018.13ppm 가

1.

| Ingredient | Gochujang | | | | | Hot sauce | | | | | | | | |
|----------------|-----------|---|---|---|---|-----------|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
| Glutinous rice | O | O | | | O | | | | | | | | | |
| Wheat powder | | O | O | O | O | | | | | | | | | |
| Pepper powder | O | O | O | O | O | | | | | | | | | |
| Meju | O | O | | | | | | | | | | | | |
| Soy sauce | O | | | | | | | | | | | | | |
| Salt | O | | O | O | O | O | O | O | O | O | O | O | O | O |
| Tomatopaste | | | | | | O | | | | O | O | O | | |
| Sugar | | | | | | O | | O | | | O | O | O | O |
| Vinegar | | | | | | O | O | O | O | O | | O | O | O |
| Chili pepper | | | | | | O | O | | O | O | | O | O | O |
| Gum | | | | | | O | | | O | O | O | O | | O |

A, B, C, D, E : Commercial gochujang, F : Mexico sauce, G : Tabasco sauce, H : Chili hot sauce, I : Sweet chili sauce, J : Firey hot sauce, K : Heinz sweet chili sauce, L : Vampfire hot sauce, M : Mimi hot sauce, N : Sriracha hot chili sauce

4.

| | L | a | b | E |
|----------------------|-------|-------|------|-------|
| Munokrye | 22.19 | 9.84 | 5.07 | 71.38 |
| Hachandle | 23.92 | 11.25 | 5.49 | 69.93 |
| Ongane | 22.33 | 8.19 | 4.26 | 70.97 |
| Ottoggi | 24.01 | 11.16 | 5.3 | 69.81 |
| Sweet chilli sauce | 25.04 | 8.3 | 4.82 | 68.33 |
| Chilli hot sauce | 24.04 | 8.97 | 4.47 | 69.39 |
| Bit on the bit sauce | 21.94 | 6.71 | 2.91 | 71.13 |
| Chili sauce | 26.35 | 12.75 | 6.71 | 67.97 |
| Pico pica hot sauce | 27.31 | 10.33 | 7.03 | 66.61 |
| Steak sauce | 26.77 | 12.61 | 6.18 | 67.48 |
| Spicy red sauce | 24.69 | 10.08 | 4.87 | 68.94 |
| Tomato ketchup | 25.48 | 12.42 | 6.25 | 68.67 |
| Mimi hot sauce | 28.39 | 19.87 | 9.59 | 68.1 |

2.

| Hot sauce | Fluidity | ingredient | | |
|----------------------------|------------|------------|-------|------------------|
| Unit : cm/30sec | | herb | spice | (know- how) |
| Tabasco & other hot sauces | water like | | | |
| Tomato ketchup | 4.7 | | | |
| Chili hot sauce | 7.1 | | | |
| Spice red sauce | 8.3 | 3) | | |
| Sweet chili sauce | 9.8 | | | Voistic |
| Sriracha hot chili sauce | 7.2 | | (2 | 3) Tabasco sauce |
| Mexico sauce | 6.5 | | 가 | voistic |

3.

| Sample | Yield stress | Flow behavior | Consistency index |
|------------------|--------------|---------------|-------------------------|
| | (Pa) | index,n | k (Pa .s ⁿ) |
| Tomato ketchup | 32.18 | 0.68 | 1.52 |
| Chilli hot sauce | 100.3 | 0.56 | 4.94 |
| Chili sauce | 52.96 | 0.54 | 3.31 |
| Steak sauce | 46.47 | 0.46 | 3.58 |
| Red sauce | 10.11 | 0.68 | 0.92 |

tomato ketchup 4.7cm/30sec, Chili hot sauce
6.5-9.8 cm/30sec 0 - 100%

가 (Super masscolloider, 增幸株式會社)
ketchup 가 tomato No. 23020, 3.7kw, 가 20-40%
4.5-5.5cm /30sec 가 40% 가
가 가 45 mesh 가 20%
Herschel-Bulkley 30% 가 99% 98%
x an- than
rheological 가 20% milling
chili hot sauce가 100.3 Pa 가 가 30%
Red sauce 10.11Pa 가 20% 가
32.18Pa 가 가

가 6)

4) 가

concept 10 가 가
(4)

a: 6-19, L: 21-28

a: 8-11, L: 22-24 가

가 가 가

美 hot sauce (5) 60

((12.42), (25.48) (6.25))

, , 가 , , ,

5) 0.01 4.0%, 0.02 5.0%,

가 0.01 3.5%, 0.01 4.0%,

0.01 5.0%, 0.01 3.8%

가 0.32%, 0.07%,

가 0.22%, 0.19, 0.06%, 0.35%

5.

| Species | Names |
|---------------|---|
| Herb & Spices | Cardamon, Thyme, Oregano, Dill seed, Basil, Majoram, Cloves, Bay leaves, Cinnamon, Coriander, Curry, Nutmeg, Rosemary, Cumin, Allspice, Poppy seed, Arrowroot, Paprica, pepper, Celery seed, red pepper, Garlic, Ginger, Onion, Mustard, 山椒, 大料, 花椒, 麻椒, (13), |
| Extracts | , |
| Flavors | Ginseong, Maple, Kiwi, Acasia, Orange, Yuzu, Melon, Grape, Mandalin, Tomato, Vanilla, Ginger |
| Others | , |

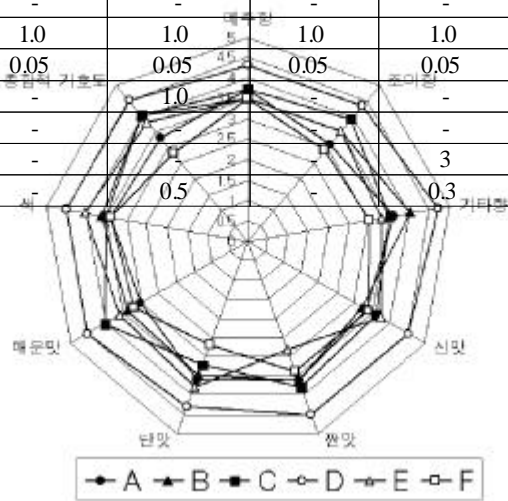
가 가
 7)
 가)
 tomato paste가 가
 가
 tomato
 paste base tomato paste
 colloid milled ()
 1 : 1 가 가
 (, , 가

6. 가

| Treatment | Yield stress (Pa) | Flow behavior index - n | Consistency index - k(Pa.s ⁿ) | Voistic flow (cm/30 sec) |
|-------------------------|-------------------|-------------------------|---|--------------------------|
| Tomato ketchup | 32.18 | 0.68 | 1.52 | 4.7 |
| Chili sauce | 52.96 | 0.31 | 3.31 | 7.1 |
| 0.0% starch | 15.19 | 0.46 | 2.24 | - |
| 0.2% starch | 14.12 | 0.49 | 3.51 | - |
| 0.5% starch | 17.36 | 0.58 | 3.09 | - |
| 0.7% starch | 23.55 | 0.69 | 5.55 | - |
| 0.9% starch | 27.84 | 0.79 | 9.14 | - |
| 0.1% gum | 17.38 | 0.34 | 4.23 | 6.3 |
| 0.3% gum | 24.45 | 0.47 | 3.75 | 8.0 |
| 0.5% gum | 26.79 | 0.46 | 3.59 | - |
| 0.7% gum | 29.19 | 0.45 | 3.42 | - |
| 0.9% gum | 39.55 | 0.43 | 1.09 | - |
| 0.5% starch 0.5% gum | 33.21 | 0.74 | 2.92 | 6.2 |

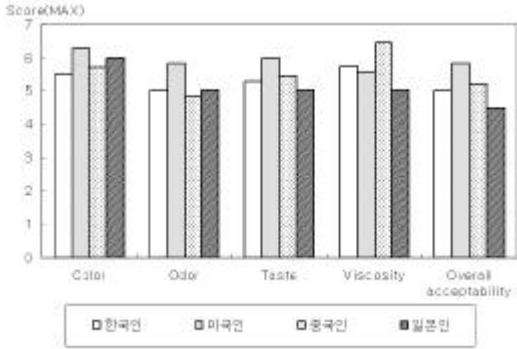
7.

| Material | A(Basic) | B | C | D | E | F |
|----------------|----------|--------|--------|--------|--------|--------|
| gochujang | 66 | 66 | 66 | 66 | 66 | 66 |
| Tomato paste | 66 | 66 | 66 | 66 | 66 | 66 |
| vinegar | 10 | 10 | 10 | 15 | 10 | 10 |
| Xantahan Gum | 40(1%) | 40(1%) | 40(1%) | 40(1%) | 40(1%) | 40(1%) |
| MSG | - | - | - | 0.5 | - | - |
| starch | - | - | 1 | - | - | 2 |
| salt | - | - | - | 5 | 1 | 2 |
| sugar | 20 | 20 | 20 | 3 | 20 | 20 |
| sorbitol | 15 | 15 | 15 | 7.5 | 10 | 2 |
| onion powder | 4 | 4 | 6 | 4 | 4 | 4 |
| garlic powder | 2 | 3 | 2 | 2 | 2 | 2 |
| soybean sauce | 20 | 5 | 20 | 13 | 10 | 7 |
| water | 100 | - | 50 | 100 | 50 | 100 |
| clove | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| bay leaves | 0.7 | 0.4 | 0.1 | 0.7 | 0.9 | 0.7 |
| oregano | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 |
| basil | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 |
| rosemary | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| nutmag | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| black pepper | 2.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 |
| kamcho | 2.0 | 2.5 | 1.0 | 5.0 | - | 5.0 |
| paprica | - | 3 | - | 1.6 | - | - |
| chicken broth | - | 100 | 50 | - | 50 | 30 |
| ginger | - | - | - | - | - | - |
| alcohol(mirim) | 20 | 20 | 20 | 20 | 20 | 20 |
| Lemon | - | - | - | - | - | - |
| citric acid | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| colourant | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Beef ext. | - | - | - | 1.0 | - | - |
| Puree | - | 20 | - | - | - | - |
| Tabasco | - | - | - | - | - | 3 |
| Others | - | - | - | - | - | 0.3 |



, , ,)
 , , , , :
 .
 0.09%
 Hakke
 voistic
 .(6)

1. 가



2.

32.18Pa 0.5% 가 Voistic 4.7cm/30sec 7.2cm/30sec 6.2cm/30sec 가 pH가 pH 3.5 ()가 가 12.11 24.24 (12.42, 25.48) 30% 가 tomato paste 1:1 (가 가) 가 base 가 , , , 가 5.45

82-84 가 xanthan gum 가 100 가 48 가 300 가 D (7, 1) 가 () (/), (LA, NY), 40 가 7 가 .4 .1 가 2 가 가 (6.27), (6.0) (5.7) 5.5 가 4.8 - 5.8 가 5.8 , 5.0 , 4.8 가 가가 4.8-5.0 6.0 가 ,

가 5.25 , 5.0

가 6.45

가 5.75 5.54

가 5.0

가 5.18 , 5.0 , 4.5

가

fried chicken, ,

steak, fried chicken, ,

, fried chicken, , ,

가

fried chicken

가 가 .(3)

spicy

苦味 ()

3.3

paste 15 : 1, 2 : 1 3 : 1

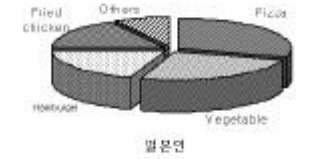
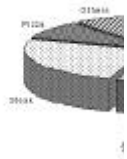
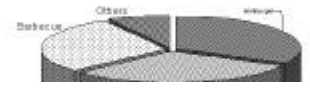
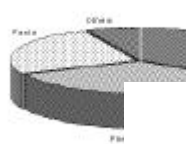
recipe

가 MSG, ,

가

: paste 2 : 1

1 : 1 15 : 1



2 , 3.3 10 가

가

(chicken broth)

가

가

0.04%

가

paste 1.5 : 1

gum 0.1%, 0.15% 0.25%

가 long tail gum

가 0.1%

가 Voistic 6.3/30sec

가

0.1% - 1.0%

가 0.1%, 0.1%

가

가 20

spicy

| | | | |
|-------|-----------------|----------------------|--------------------|
| 10 가 | 가 | 34.82mg% | 10.87mg% |
| 2 | | | 1.62mg% |
| spicy | proto- type | . | hot |
| | , chicken broth | sauce tabasco | 22.46mg% |
| | | | chili |
| | paste | 2.03mg% | 2.62mg% |
| | 가 | | chili sauce |
| | | | capsaicinoid |
| 가 | 가 | , | |
| | 가 | capsaicinoid | |
| | | 가 | Capsicum(capsaicin |
| | Foodex Japan | 1,000,000 U) | , |
| () | | 가 | () |
| | 1 | 가 | . |
| | | | seasoning |
| | 2가 | | recipe |
| | dipping | 2% | |
| | 가 | 가 | . |
| | 가 | 50 | capsaicinoid |
| . 7 | | 2.93mg% | Scoville unit 440 |
| | | | panel 5 |
| | | 가 | hot 가 |
| | | . | 가 |
| | | 가 | (8) 50 |
| 가 | | | 74%, 26% |
| | 가 | 20 가 45.5%, 30 가 41% | 40 |
| | 가 | 13.5% . 가 | 28.5%, 14.3%, |
| | | 9.5% | 52.3% |
| | | | 33.3%, |
| | capsaicinoid | 4.8%, 4.8%, | 4.8% 가 |
| | | . | 가 fried chicken, |
| | capsaicinoid가 | fried shrimp, pizza | 가 |

8. 가(7)

| Attribute | Pizza | Fried chicken | | Shrimp | Ddug |
|--------------------|-------|---------------|---------|--------|------|
| | | American | Chinese | | |
| Appearance | 5.1 | 6.1 | 5.7 | 5.1 | 5.1 |
| Flavor | 5.3 | 6.3 | 4.8 | 4.3 | 4.2 |
| Taste | 5.6 | 6.4 | 5.4 | 4.5 | 4.4 |
| Viscosity | 5.4 | 6.4 | 6.4 | 4.4 | 4.5 |
| Overall acceptance | 5.9 | 6.3 | 5.9 | 4.7 | 4.5 |

dipping , , , () 4. :
 7 가 , , 27(2), 38(1994)
 가 5. :
 4.2-5.7 가 79(1988)
 pizza 5.9 , fried chicken 5.1 6. :
 , fried shrimp 4.7 , 가 4.5 , 27(2), 55(1994)
 7. :
 pizza fried chicken fast , 3(4), 331(1988)
 food . 8. : , ,
 (, 447-453, 1997
)
 fried chicken 50 . 97
 가 (8) , 1997
 가 5.9 . 10. :
 98 , 1998
 가 11. :
 . 7(2), 48(1994)

4.
 1. :
 . 9-30(1995)
 2. , , , :
 , 28(6), 1014-
 1020(1996)
 3. : . , 581-
 587, 1997

12. : . , 1997
13. : . 10(2),
55(1997)
14. : 가 . 10(2),
62(1997)
15. , , :
25, 502(1993)
16. 50