

Formulation of Thai Fried Chili Paste Seasoned Sauce Product for Betong Instant Noodle

Wipada Muninnopamas^{1*}, Kamontip Kanpairo², Suteera Srisuk³,
Jeerawoot Muninnopamas⁴, Abdunaser Hayeesamoh⁵

^{1,2,3}Department of Food Science and Technology, Faculty of Science Technology and Agriculture, Yala Rajabhat University, Thailand

⁴Department of Computer Science, Faculty of Science Technology and Agriculture, Yala Rajabhat University, Thailand

⁵Department of Chemistry, Faculty of Science Technology and Agriculture, Yala Rajabhat University, Thailand

Email: ¹wipada.m@yru.ac.th

ABSTRACT

The purpose of this study was to develop Thai fried chili paste seasoned sauce product for Betong instant noodle. Thai fried chili paste formula revealed that the most acceptance formula by consumers composed of garlic, shallot, dried cayenne pepper, coconut sugar, vegetable oil, fish sauce, shrimp paste, oyster mushroom and ripe tamarind in quantity of 15.87%, 15.87%, 3.57%, 21.80%, 14.0%, 9.93%, 3.96%, 11.90% and 3.10% respectively. The appropriate quantity studying of Thai fried chili paste containing in seasoned sauce product for Betong instant noodle indicated that seasoned sauce product which composed of Thai fried chili paste compounds in the quantity of 35% of the totally ingredients weight obtained the highest total scores. The ratio study of the Thai fried chili paste seasoned sauce product per rehydrated Betong noodle 117 grams indicated that 50 grams of seasoned sauce per rehydrated Betong noodle 117 grams was the most favorite. The physical characteristics of Thai fried chili paste seasoned sauce product for Betong instant noodle were the color of L*, a* and b* with value of 16.05, 12.22 and 23.01 respectively and the Water Activity (aw) with value of 0.54. The chemical characteristics were 4.27 pH and the quantity of salt, sugar, moisture, protein, fat, ash and fiber were 2.83%, 1.11%, 8.50%, 0.60%, 25.48%, 6.58% and 2.38% respectively. Meanwhile, the result from consumers' acceptance survey revealed that 37.5% of consumers rated "Liked very much" with average score of 7.64±1.34.

Keywords

Product Development, Betong noodle, Thai fried chili paste, Seasoned Sauce, Instant noodle

INTRODUCTION

Betong instant noodle is the most well-known and popular instant noodle product in 3 southern border provinces of southernmost of Thailand. Its distinctive features are chewy and soft threads [1]. It made from wheat flour, water and salt. Natural colors could be added for more attractive feature of this product. Then, it was kneaded and mixed, rolled into sheets, cut into strips, steamed until completely cooked and stranded to bundles of noodle [2]. The product was dried under sun light or using another power source. The noodle must be restored to soften in boiling water before being consumed [3]. The soften noodle can be made several kinds of fast food such as noodles in thick gravy, salad and stir-fried noodles. Betong instant noodle can be applied in various types of food, it is necessary to prepare and add the right quantity of seasoning to meet the consumer's taste, otherwise it will be the poor or uneven taste problems [4]. Moreover, there is a rather tricky and inconvenient method of preparing ingredients. Therefore, the proponents of the research project were interested in studying and developing the Fried Chili Paste seasoning formula of Betong noodles for more acceptable among consumers and relayed to the entrepreneurs of producing Betong instant noodle in Yala Province, Narathiwat Province, Pattani Province and other area interested. To encourage entrepreneurs by delivering Instant noodle and seasoned sauce in the same pack in order to ease cooking and easily portable during travelling,

such as during a trip to Haji and Umrah in Saudi Arabia, where people from the Southernmost of Thailand Border Provinces often bring dry food which easy cooking or to be consumed at home or during travelling to neighboring country such as Malaysia. Thai food has a taste that is acceptable across the world and the good taste of Thai food is considered as a part of community strength and society stability.

MATERIALS AND METHODS

Materials

Soy sauce and black soy sauce were purchased from Yan Wal Yun Co., Ltd, Thailand.and other ingredients included vegetable oil (Thai vegetable oil public Co., Ltd, Thailand), fish sauce (Tang sang hah public Co., Ltd, Thailand), sugar (Thai roong ruang, Co., Ltd, Thailand), shrimp paste (Suksawasthamrong Co., Ltd, Thailand). The oyster mushrooms, shallot, garlic, dried shrimp, tamarind, dried cayenne pepper and coconut sugar were purchased from Se-ree Market, Muang District, Yala Province, Thailand.

Study the formula of fried chili paste to produce Betong instant noodleseasoned sauce product desired by consumers

The study of 5 formulas of fried chili paste to produce Betong instant noodle seasoned sauce product which carried out at the same ingredient (Table 1).Later, the fried chili paste was used to produce seasoned sauce, which the ingredients composed of vegetable oil, soy sauce, black soy sauce, sugar, garlic and fried chili paste in the percentage of 27, 18, 1.1, 10.5, 18.4 and 25, respectively. The seasoned was used to fried Betong instant noodle before being tested for sensory evaluation using the 9 Point Hedonic scale, which performed by 30 untrained panelists for assessing of color, appearance, flavor, taste and the acceptability of product.

Table 1 The formulas of fried chili paste.

Ingredients	The quantity of fried chili pastes ingredients (%)				
	Formula1	Formula2	Formula3	Formula4	Formula5
vegetable oil	13.98	11.0	20.3	11.38	25.39
coconut sugar	16.29	23.80	19.63	25.85	15.21
fish sauce	1.68	7.93	14.2	0	14.98
water	28.08	0	0	0	0
shrimp paste	3.70	3.96	0	0	6
salt	0	0	0	3.20	0
garlic	11.23	15.87	16.45	9.05	11.15
shallot	13.48	15.87	16.45	34.3	11.15
dried cayenne pepper	2.58	3.57	2.53	5*	4.45
tamarind	5.61	6.10	6.52	7.75	8.45
dried shrimp	3.37	0	3.92	3.47	3.22
oyster mushrooms	0	11.90	0	0	0

The process of fried chili paste production

First, the pedicle of dried cayenne peppers were removed. Then the peppers were washed thoroughly, drained before roasting until crispy and then finely ground with the National grinder MX-T3PW at speed level of 1 for 3 minutes. Next, the shallots and garlic were removed their peel, cleaned, cut into small pieces, fried until crispy and blended thoroughly with a National

grinder MX-T3PW at speed level of 1 for 3 minutes. Add protein ingredients, including dried shrimp or oyster mushrooms. The formula that added dried shrimp was blended thoroughly while the formula which added the oyster mushrooms was washed thoroughly and then cut into small pieces. All the ingredients were fried with oil, added seasonings such as tamarind meat, salt, fish sauce, shrimp paste, coconut sugar and stirred together until the mixture reached 60 °C for 5 minutes. Finally, the hot fried chili paste was filled in sterilized glass bottle.

The process of fried chili paste seasoning

The vegetable oil was put in a pan and heated up to a temperature of 100 °C. Then garlic, sugar, fried chili paste, soy sauce and black soy sauce were added (by mixing soy sauce and black soy sauce first). The mixture was simmered until it reached at 105 °C for 5 minutes, put into sterilized bottle (boiling in hot water for 5 minutes).

The process of stir fried Betong noodle with seasoned sauce product

The instant noodle product on serving size is 50 grams. Next, rehydrate instant noodle by soaking in water for 15 minutes or in hot water for 3 minutes before setting it to drain. The result shows the instant noodle having more weight of 117±1.15 grams. Later, the seasoned sauce product of Betong instant noodle is put in the hot pan and fried together with 117 grams of rehydrate Betong instant noodle, then added some eggs, and 23.5 grams kales to ready-to-cook food.

The optimal quantity of fried chili paste added to the seasoned sauce product

The optimal quantity of fried chili paste added to the seasoned sauce product for Betong instant noodle was studied for 5 levels at the percentage of 15, 20, 25, 30 and 35% of all ingredients as shown in Table 2. The seasoned sauce products were fried with the Betong noodle. The mixed product had been tested for sensory evaluation with the 9point Hedonic scale (9 = like extremely, 5 = neither like nor dislike, 1 = dislike extremely) by 30 untrained panellists with sensory evaluation for colour, appearance, flavour, taste and overall acceptability.

Table 2 The Formula of fried chili paste seasoned sauce product for Betong Instant Noodle.

Ingredients	Formula1(%)	Formula2(%)	Formula3(%)	Formula4(%)	Formula5 (%)
vegetable oil	30.6	28.8	27	25.2	23.4
soy sauce	20.4	19.2	18	16.8	15.6
black soy sauce	1.3	1.2	1.1	1.05	1.0
granulated sugar	11.9	11.2	10.5	9.8	9.0
garlic	20.8	19.6	18.4	17.15	16.0
fried chili paste	15	20	25	30	35

Study the ratio offried chili paste seasoned sauce effect to Betong instant noodle which consumer acceptance.

Study the ratio offried chili paste seasoned sauce effect to Betong instant noodle which one unit of consumption (The suggestions of producer recommend consumer to consume the food product each time) The quantity of fried chili paste seasoned sauce effect to Betong instant noodle. The

ratio of rehydrate Betong instant noodle 117 grams per fried chili paste seasoned sauce 5 level were studied at the weight of 30.37, 35.37, 40.37, 45.37, and 50.37 grams. After that, the sensory evaluation was performed by the ranking test of 30 untrained panelist, the formula that the consumer give the highest rate was selected and packed for the next step.

Study the characteristics of fried chili paste seasoned sauce product for Betong instant noodle

The characteristics of fried chili paste seasoning sauce product for Betong instant noodle of the development formulas were studied in terms of physical included the color of L* a* and b* (Color flex model CX 1471) and a_w (Aqualab brand Ss 36090). The chemical characteristics were the total of sugar, moisture, protein, fat, ash, fiber and carbohydrates. [5]

The consumers' acceptance survey

The consumers' acceptance survey of fried chili paste seasoned sauce product by fried with rehydrated Betong noodle which ready to eat. Consumer (n = 600) were tested and interviewed at each 3 locations included Yala province (n = 200), Pattani province (n = 200) and Narathiwat province (n = 200). The tested consumer accepted by 9 point Hedonic scale (1 = Dislike the most 2 = Dislike much 3 = Dislike at moderate level 4 = Dislike a little 5 = cannot say like or dislike 6 = like a little bit 7 = like at moderate level 8 = like very much 9 = like the most) and assessed by calculating the percentage from the consumer evaluation scores.

Statistical analysis

The data were expressed as mean ± standard deviation. The experiment had been carried out by Randomized Complete Block Design; RCBD. Data were statistically analyzed using the SPSS Statistics program. Comparison means were determined using One-Way ANOVA. Significance (0.05) of post hoc multiple comparisons conveyed using Duncan's Multiple - Range Test.

RESULTS AND DISCUSSION

The study of formula's fried chili paste to produce seasoned sauce product for Betong instant noodle

The results of the study of 5 fried chili paste formulas which suitable to produce seasoned sauce product of Betong instant noodle as shown in Table 3

Color

The suitable fried chili paste formulas to produce seasoned sauce product for Betong instant noodle; formula 1, 2, 3, 4 and 5 got the color preference scores of 6.33, 6.43, 6.80, 6.67 and 6.50 respectively, it indicated that the formula 3 was the highest color score.

Appearance

The 5 fried chili paste formulas; formulas 1, 2, 3, 4 and 5 got the appearance scores of 6.30, 6.73, 6.83, 6.57 and 6.53 respectively. The result showed that the formula 3 was the highest appearance score because the product from the formula 3 was quite smooth texture, reddish brown color and a suitable amount of floating oil.

flavor and taste

The fried chili paste formula 1, 2, 3, 4 and 5 got the flavor scores of 6.27, 6.93, 6.50, 6.77 and 6.90, respectively. It was indicated that the formula 2 was the highest flavor score. The result also disclosed the fried chili paste formula 1, 2, 3, 4 and 5 received the taste scores of 6.37, 7.67, 7.17, 6.93 and 6.80, respectively. The result showed that formula 2 got the highest taste score. The flavor and taste of fried chili paste were from the ingredients and thermal processing used in the production; the sweet taste was from coconut sugar, the salty taste originated from salt and shrimp paste and the sour taste derived from tamarind. In addition, the flavor and taste of the fried chili paste came from spices used in the production; garlic, shallot, dried cayenne pepper and oyster mushrooms. The main flavoring compounds in fried garlic by simultaneous distillation and extraction were dimethyl sulfide, allyl alcohol, diallyl sulfide, methyl allyl disulfide, diallyl disulfide and dithiols [6]. The flavoring compounds in fried shallots were dimethyl disulphide, hexanal, 2-methyl-2-pentenal, 2,5d (*E*)-2-hexenal, 2-pentylfuran, methyl propyl disulphide, 1-pentanol, 2,4-dimethylthiophene, (*Z*)-propenyl methyl disulphide, (*E*)-propenyl methyl disulphide, (*E*)-2-heptenal, dipropyl disulphide, dimethyl trisulphide, nonanal, (*E*)-2-octenal, (*E*)-propenyl propyl disulphide, 1-octen-3-ol, 2-ethyl-3,6-dimethylpyrazine, 1-heptanol, (*E,Z*)-2,4-heptadienal, (*E,E*)-2,4-heptadienal, 2,5-dimethyl-3-propylpyrazine, (*E*)-2-decenal, (*E*)-2-undecenal, (*E,Z*)-2,4-decadienal, (*E,E*)-2,4-decadienal and 2-hexyl-5-methyl-2(5H)-furan-3-one [7]. The flavoring substances in dried cayenne pepper are 2-methyl-butanoic acid, 2-methyl-propanoic acid, acetic acid, furfural, benzaldehyde, 1,3-cyclohexadiene-1-carboxaldehyde, benzeneacetaldehyde, 2-acetyl furan, isoamylacetate, 2-hydroxy benzoic acid methyl ester, pyrroles, 2-acetylpyrrole, 3-hydroxy-2-butanone, dodecane, undecane, tridecane, tetradecane, alpha-gurjunene, beta-caryophyllene, 5-methyl-undecane and 1-methoxy-4-(1-propenyl)-benzene [8]. In addition, the oyster mushroom was added to the formula 2 fried chili paste to replace dried shrimp for an exotic flavor and might decrease the cost of fried chili paste production. Moreover, the oyster mushroom also contains amino acids that are important for flavor and the taste of food; the sweet taste is due to threonine, serine, alanine and proline [9, 10]. Furthermore, the oyster mushroom also has the Flavor 5'-nucleotides which are responsible for the umami or palatable taste [10]. Fried chili paste, Nam Phrik Phoa is widely consumed in Thailand. The fried chili paste which is available in the market has a sweet taste, salty and slightly acidic taste. It can be used to cook many kinds of food such as tom yum and noodles, etc., or can be eaten directly, such as spread on bread for breakfast or a snack. [11].

Overall acceptability

The fried chili paste formula 1, 2, 3, 4 and 5 record the overall acceptance scores of 6.10, 8.13, 6.87, 6.23 and 6.47, respectively. The result indicated that the formula 2 got the highest overall acceptance rating score due to the highest flavor score. The product from the formula 2 was smooth texture, reddish brown with a sweet taste, followed by a salty taste, a sour taste and a little spicy. It made the scent of spices and herbs, so it was the most acceptable formula as shown in Figure 1.

Table 3 Sensory acceptability test of fried chili paste to produce Betong instant noodle.

Formula	9 Point hedonic scale *				
	Color	Appearance	Flavor	Taste	Overall acceptability
1	6.33±1.35 ^a	6.30±1.07 ^a	6.27±1.31 ^a	6.37±1.35 ^a	6.10±1.27 ^a
2	6.43±1.52 ^a	6.73±0.93 ^a	6.93±1.29 ^a	7.67±0.98 ^c	8.13±0.72 ^c

3	6.80±1.19 ^a	6.83±0.82 ^a	6.50±1.31 ^a	7.17±0.97 ^{bc}	6.87±1.09 ^b
4	6.67±1.22 ^a	6.57±1.28 ^a	6.77±1.23 ^a	6.93±1.39 ^{ab}	6.23±1.33 ^a
5	6.50±1.26 ^a	6.53±1.36 ^a	6.90±1.58 ^a	6.80±1.80 ^{ab}	6.47±1.65 ^a

Note^{a-b-c} the numbers with different letters in the same vertical is significantly difference in statistics ($p < 0.05$)

*30 panelists



Figure 1 The formula 2 fried chili paste that most of consumers accepted

The study of fried chili paste to produce seasoned sauce product

The results of the quantity study of fried chili paste adding to the seasoned sauce product for Betong instant noodle in 5 levels were 15%, 20%, 25%, 30% and 35% of the total ingredients as shown in Table 4.

Color

The study indicated that the color scores were 6.10, 6.47, 6.30, 6.73 and 7.07 when took the seasoned sauce product for Betong instant noodle which adding fried chili paste at 15%, 20%, 25%, 30% and 35% of the total ingredients weight to fry with ready-to-eat Betong products. Adding more fried chili paste to the seasoned sauce product resulted in a darker color to fried Betong noodle. The black brown color of the fried chili seasoned causes from dried cayenne pepper; the main coloring ingredient. The red color of fresh cayenne pepper from carotenoid compound such as lutein, β -carotene, β -cryptoxanthin, zeaxanthin, violaxanthin, capsanthin and capsorubin [12]. When dried cayenne pepper increased the concentration of sugar and amino acids and caused a non-enzyme brown reaction (maillard reaction). The effect of an amino acid or amino acid group of proteins and peptides react with the reducing sugar changed the color of fried chili cayenne pepper reddish brown [8]. Later, when the dried cayenne peppers were fried, the color changed to more black-brown caused by maillard reaction again [13]. As with other spices; garlic and shallots, when being fried, the yellow-brown color was intensified by the maillard reaction [13]. Moreover, adding 35 % of fried chili paste to the seasoned sauce product when stir-fried with Betong noodle to get a ready-to-eat product with the most color acceptance by consumers.

Appearance

In terms of appearance, it was found that adding fried chili paste to seasoned sauce product at 15%, 20%, 25%, 30% and 35% of total ingredient weight resulted in the ready-to-eat Betong products got the appearance scores of 6.17, 6.47, 6.30, 6.87 and 7.20 respectively. The 35% fried chili paste got the highest appearance score due to the appropriate amount of fried chili paste in the ready-to-eat Betong products as shown in Figure 2.

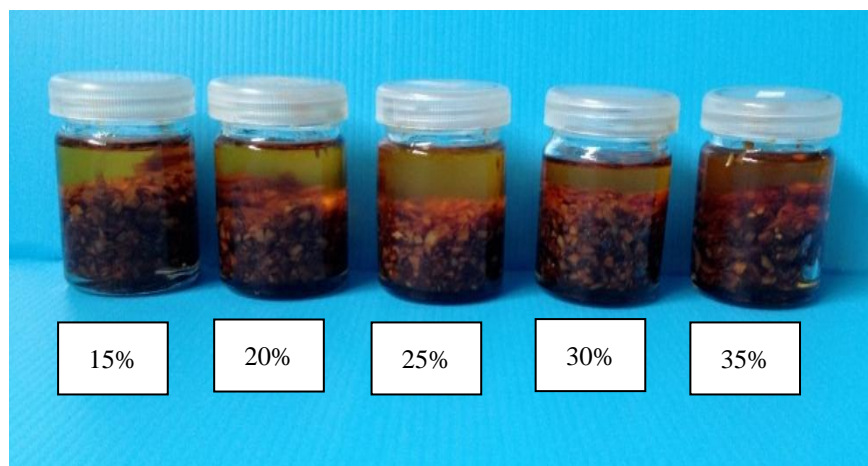


Figure 2 The seasoned sauce product for Betong instant noodle consisted of 15%, 20%, 25%, 30% and 35% of fried chili paste

Flavor and taste

Adding fried chili paste to seasoned sauce product at 15%, 20%, 25%, 30% and 35% of the total ingredient weight resulted in the ready-to-eat Betong products obtained the flavor scores of 6.17, 6.63, 6.43, 6.70 and 7.00 respectively with statistically different ($p < 0.05$) and taste scores of 6.30, 6.73, 6.60, 6.97 and 7.67 respectively. The 35% of fried chili paste adding to the seasoned sauce product obtained the highest flavor scores due to the appropriate amount of fried chili paste in the ready-to-eat Betong products. The flavor compounds in fried chili paste are sulfur-containing compounds, lipid-derived compounds, strecker aldehydes, maillard reaction products, dimethyl sulfide, allyl mercaptan, 2-(or3-) methylbutanal, allyl methyl sulfide 2,3-butanedione, 3,3-thiobis (1-propene) and methyl propyl disulfide [14]. The seasoned sauce product for Betong instant noodle which adding 35 % of fried chili paste caused the products to receive the highest scores of flavor and taste from customers.

Overall acceptability

The seasoned sauce product for Betong instant noodle which adding 35% of fried chili paste caused the products having the highest scores of overall acceptability due to the highest scores of color, appearance, flavor and taste. Therefore, the seasoned sauce product for Betong instant noodle which adding 35% of fried chili paste was selected as a development formula.

Table 4 Sensory evaluation of the fried chili pasted seasoned sauce products for Betong instant noodle with different levels of fried chili paste.

Fried Chili paste quantity(%)	9 Point hedonic scale				
	Color	Appearance	Smell	Taste	Overall acceptability
15	6.10±1.37 ^a	6.17±1.69 ^a	6.17 ^a ±1.16	6.30±1.35 ^a	5.80±1.45 ^a
20	6.47±1.23 ^{ab}	6.47±1.12 ^{ab}	6.63 ^{ab} ±1.20	6.73±1.31 ^{ab}	6.47±1.38 ^b
25	6.30±1.10 ^{ab}	6.30±1.10 ^a	6.43 ^{ab} ±0.96	6.60±1.02 ^{ab}	6.30±0.90 ^{ab}
30	6.73±1.06 ^{bc}	6.87±0.81 ^{bc}	6.70 ^{ab} ±1.13	6.97±0.98 ^b	6.80±1.19 ^b
35	7.07±1.24 ^c	7.20±1.05 ^c	7.00 ^b ±1.06	7.67±1.14 ^c	7.97±0.87 ^{cb}

Note^{a-b-c} the numbers with different letters in the same vertical is significantly difference in statistics ($p < 0.05$)

*30 panelists

Study the ratio of fried chili pasted seasoned sauce to Betong instant noodle which consumer acceptance

The ratio of the fried chili pasted seasoned sauce were investigated at 5 levels of **30, 35, 40, 45,** and **50** grams per 117 grams of the rehydrate Betong noodle. Then, seasoned sauce was stirred and fried with the Betong noodle. The ready-to-eat Betong products was carried out in the sensory evaluation by ranking for preference, 1 defined as the preference rank 1 and 5 defined as the preference rank 5, and used 30 panelists. The test disclosed the ratio of the chili pasted seasoned sauce to Betong noodle in 5 levels having preference ranking score between 51-153 as shown in Table 5. The fifth ratio, fried chili pasted seasoned sauce of **50** grams to hydrate Betong noodle quantity **117** grams getting the first ranking of preference difference from other ratio in the statistics. It was selected to rehydrate Betong noodle for further supply.

Table 5 Sensory evaluation by ranking preference test of fried chili pasted seasoned sauce to Betong instant noodle.

Panelists	Average preference order ¹				
	Formula1	Formula2	Formula3	Formula4	Formula5
Rank sum	153	129	110	80	51
Rank average*	5.1 ^d	43 ^{cd}	3.66 ^c	2.66 ^b	1.7 ^a

Note 1 defined as the preference rank 1 and 5 defined as the preference rank 5

* The total of ranking for preference which the same horizontal character is not difference in statistically ($p \geq 0.05$)

¹ 30 panelists

Characteristics of the developed formula of fried chili pasted seasoned sauce

The fried chili pasted seasoned sauce products had the average of brightness or L* of 16.05. The average of red value or a* was 12.22 and the average of yellow value or b* was 23.01 due to the mixture containing vegetable oil, soy sauce, black soy sauce, sugar, garlic and fried chili paste in 23.4%, 15.6%, , 1.0%, 9.0%, 16.0% and 35% respectively. The a_w value, an important factor in the control and prevention of deterioration of food products. Therefore, it had a direct effect on the shelf life of food products. Microorganisms grow under the value of a_w which limited, and often making food to have value a_w lower in the point of microorganisms can grow such as almost all bacteria cannot grow in the value of a_w lower than 0.9 and most mold will not grow at the value a_w lower than 0.6 [15] Fresh food, having a lot of water, is classified in the group of high a_w value; the approximate value is more **0.85** such as meat and fresh vegetables. The intermediate moisture foods, such as jam, has the a_w value in the range 0.6-0.85. The food, having the a_w value lower than 0.6 are dry food, such as cereals, milk powder and coffee [16]. The fried chili pasted seasoned sauce products, having the average a_w value of 0.54 and in the range of dry food, can be stored for a long time. The fried chili pasted seasoned had the a_w value lower than basil sauce products from the research of Somphoj Pojanapimon with the a_w value of 0.90 [17]. The basil sauce consisted of basil, cheese, garlic and lemon juice in 35.7%, 23.2% 4.5% and 3.6% respectively. The 67% of the ingredients caused the product having high a_w value. The chemical characteristics were 4.27 pH. The pH value is 4.27 classified in the group of food

products with acidity food which pH between 3.7 - 4.5[18]. Therefore, seasoned sauce classified in the group of food products which a_w equal or lower than 0.85 which the pH value higher or lower than 4.5. This group of food did not use heat at the sterilizing level [19]. The production process of seasoned sauce product for Betong instant noodle uses many methods of preserving food, known as Hurdle technology [20] which is Heat treatment at 105 °c for 5 minutes, combined with the acidity of the product, which these factors help promote the efficiency of microbial disinfection and help the product to have long shelf life. The ingredients of seasoned sauce were salt, sugar, moisture, protein, fat, ash and fiber at the levels of 2.83%, 1.11%, 8.50%, 0.60%, 25.48%, 6.58% and 2.38%, respectively.

Table 6 Physical and Chemical Characteristics of fried chili pasted seasoned sauce product for Betong instant noodle.

Characteristic of product*	Fried chili pasted seasoned sauce product
Physical characteristics	
Color	
L*	16.05±0.24
a*	12.22±0.33
b*	23.01±0.51
Water Activity (a_w)	0.54±0.00
Chemical characteristics	
pH	4.27±0.06
Salt (%)	2.83±0.01
Sugar (%)	1.11±0.03
Moisture (%)	8.50±0.46
Protein (%)	0.60±0.01
Fat (%)	25.48±0.54
Ash (%)	6.58±0.29
Fiber (%)	2.38±0.15

Note^{a-b-c} the numbers with different letters in the same vertical is significantly difference in statistics ($p<0.05$)

*3 iterations of experimentation

The consumers' acceptance survey of fried chili pasted seasoned sauce of Betong instant noodle

According to the consumers' acceptance survey of 600 peoples in this study, the findings showed that most of consumers accept the fried chili pasted seasoned sauce of Betong instant noodle products in the level of like in the moderate level to the level of like the most 87.5%, the level of like in the moderate level is 23.2%, like very much is 37.5% and level of like the most is 26.8%, including the average preference score of 7.64 ± 1.34 , as shown in the following figure 3.

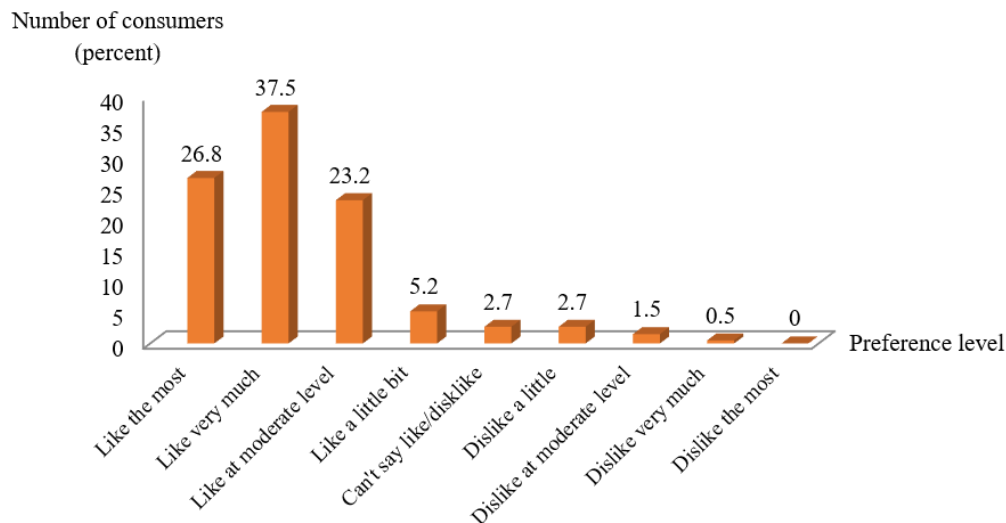


Figure 3 The level of acceptance the fried chili pasted seasoned sauce of Betong instant noodle of 600 consumers

CONCLUSIONS

The results of this study concluded that the formula of fried chili paste that has been accepted by consumers containing garlic, shallot, dried cayenne pepper, coconut sugar, vegetable oil, fish sauce, shrimp paste, oyster mushroom and tamarind in 15.87%, 15.87%, 3.57%, 23.80%, 11.0%, 7.93%, 3.96%, 11.90% and 6.10% respectively. The appropriate amount of fried chili paste for the production of Betong seasoning was 35% of the total ingredients. The appropriate ratio of fried chili paste seasoned sauce product to Betong instant noodles was 50.37 grams per 117 grams. The fried chili paste seasoned sauce product help consumers more convenient in cooking, can be stored for long time and easy portable during travel. Moreover, the food product of Yala Province is widely known and acceptable in Thailand.

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