

Transform the Paradigm of Conventional to Advanced Cooking Process

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SARIPATI

Hotel Salak The Heritage, sebuah hotel bintang empat di Bogor, telah melakukan penelitian untuk mengembangkan dan memproduksi bumbu bubuk bekerja sama dengan PT AGFI yang sudah ada di industri makanan Sunda. Bubuk rempah-rempah diproduksi dengan menggunakan tekanan stabil, proses pengeringan suhu rendah (50-60°C) dan kontrol kualitas yang intensif, yang menghasilkan kadar air yang rendah dan produk yang sangat higienis, karena bebas dari kotoran bakteri dan kotoran lainnya. Karena produk ini hanya terdiri dari bahan-bahan alami, produk ini memberikan efek penyedap rasa standar dan tidak ada warna yang tidak diinginkan pada produk makanan akhir. Hotel Salak telah melakukan beberapa percobaan tentang efektivitas proses memasak dengan menggunakan bumbu bubuk, salah satunya adalah Rendang Daging Sapi, dan menghemat waktu memasak dan persiapan hingga 16,7% dan menghemat biaya hingga 9,36%. Hal ini diharapkan dapat mengubah paradigma dari proses memasak yang konvensional menjadi lebih efektif, efisien dan bersih.

ABSTRACT

Hotel Salak The Heritage, a four star hotel in Bogor, has conducted the research for developing and producing spice powder in cooperation with PT AGFI which already exists in Sundanese food industry. The spice powder is produced by using stable pressure, low temperature drying process (50-60°C) and intensive quality controls, which result in low water content and hygienically excellent product, as it is free from bacterial filth and other impurities. Since this product only consists of natural ingredients, it gives a standard flavoring effect and no unwanted colors to the end food product. Hotel Salak has made some experiments on the effectiveness of cooking process using spice powder, one of the examples is Beef Rendang, and saves cooking and preparation time up to 16.7% and saves cost up to 9.36%. This is expected to change the paradigm of conventional to more effective, efficient and clean cooking process

INTRODUCTION

In the past five years, Indonesian tourism industry has grown rapidly. This growth is shown by the increase of domestic and international tourist number from 15,920 million in 1999 to 26,639 million people in 2004. Room occupancy rate of accommodation had also increased from 36.6% in 1999 to 37.5% in 2004 (BPS Statistic Indonesia 2004, www.bps.go.id). The rapid growth in tourism industry gives a significant contribution to food industry, especially traditional Indonesian food industry, as tourists are likely to try and eat traditional foods during their stay in Indonesia. Therefore, the need for delicious, healthy and various food products has been one of the most important aspects in food industry.

For restaurants and hotels, as main food production providers, there are three major perspectives that need to be taken into consideration in order to improve the quality of food production. Firstly, from business point of view, restaurants and hotels will have to focus on the effectiveness, efficiency, hygiene and sanitary in production process, and to improve consistency in quality and taste. Effective and efficient production process is highly recommended especially for restaurants and hotels which provide high capacity of banquet and food service. Fast and simple food process will also give benefits in production and human resource costs. Hygiene and sanitary in production process is strongly related to clean and healthy food products, and it is one of the most vital occupational health and safety issues not only for kitchen work area and staff but also for the entire staff and environment. In addition, consistency in food quality and taste will strengthen customer image and reliability to always use the products.

Secondly, food producers will have to take into account all aspects related to environmental concern. This concern arises based on the fact that industrial waste has been one of the highest causes of land-based pollution in Indonesia (National Report of Indonesia on the Formulation of a Transboundary Diagnostic Analysis and Preliminary Framework of a Strategic Action Program for the South China Sea, p. 28, www.unepscs.org). According to the World Bank data, in some countries food industry is the largest water polluter. For example, in China 33% of industrial waste come from food industry, USA 28.2%, Japan 36.5% and India 50.9%. Moreover, one-third of all organic water pollution in the world is caused by the food and beverages industries (Water pollution in selected countries, 1993, www.iiasa.ac.at). Based on the above data, all environment factors such as water usage, and less waste and minimum storage of raw materials must be taken into consideration by restaurants and hotels, as well as other food producers.

Lastly, from customer point of view, restaurants and hotels are expected to provide tasty, healthy, clean, and natural food, which can be served and delivered in a relatively short time. These days people tend to have healthier living style by consuming delicious and natural food containing no additional additives and preservatives. Furthermore, people who visit restaurants or hotels will have a high expectation for not having to wait long for orders to be served.

Hotel Salak The Heritage is a four-star hotel located in the central business district of Bogor, Indonesia. It serves more than 50,000 pax of individual, family and business guests per year. The hotel has a high demand of traditional food, such as Sundanese and Padang foods for its buffet and ala carte menu. The demand does not only come from domestic guests, but also from international guests, such as groups from the United Nations and US Embassy who regularly hold meetings in Hotel Salak. As traditional food uses a wide variety of ingredients, it requires relatively

long cooking process and results in high raw material waste. Long cooking process with high varieties of ingredients may also affect inconsistency of product taste and life time, as well as service delivery time. Based on these concerns, Hotel Salak has initiated to generate a new method to transform conventional to advanced, effective, clean cooking process and less food production waste by using instant dry spice seasoning (simply named spice powder) for traditional food recipes.

METHODS

Hotel Salak has conducted the research for developing and producing spice powder in cooperation with PT Ayam Goreng Fatmawati Indonesia (AGFI) which already exists in Sundanese food industry in many years. This paper focuses on the development of spice powder and its support in Hotel Salak The Heritage's daily food production. Spice powder is instant cooking spice powder made from mixed *pure* spice powders to make seasoning. Pure spice powders have been made by PT AGFI for almost 6 years by using stable pressure, low temperature drying process (50-60°C) for 24 hours, and intensive quality controls, which result in low water content of less than 10% and hygienic product as it is free from bacterial filth and other impurities. In addition, pure spice powder only consists of natural ingredients without any filling materials.

Hotel Salak has started developing formulation for spice powder which can be used for instant cooking seasoning by conducting some experiments for some traditional recipes. The development of spice powder can be divided into four stages (Figure 1): seasoning formulation, cooking trial, respondent test and production.

Stage 1 : Seasoning Formulation

In this stage, Hotel Salak Executive Chef makes some formulation for the seasoning based on the existing standard recipe. To make one formulation, the chef needs to convert each ingredient proportion from the standard recipe to the proportion of pure spice powder. For example, one piece of garlic is equivalent to $\frac{1}{4}$ teaspoon of garlic powder. All converted ingredients are combined as a new recipe of spice powder.

Stage 2 : Cooking Trial

The new spice powder recipe is trialed in a cooking process. The effectiveness of cooking process and food taste are evaluated. Cooking trial may be repeated until it reaches the most effective and simple process and until the product has the same standard quality of taste and performance as the products cooked using conventional process.

Stage 3 : Respondent Test

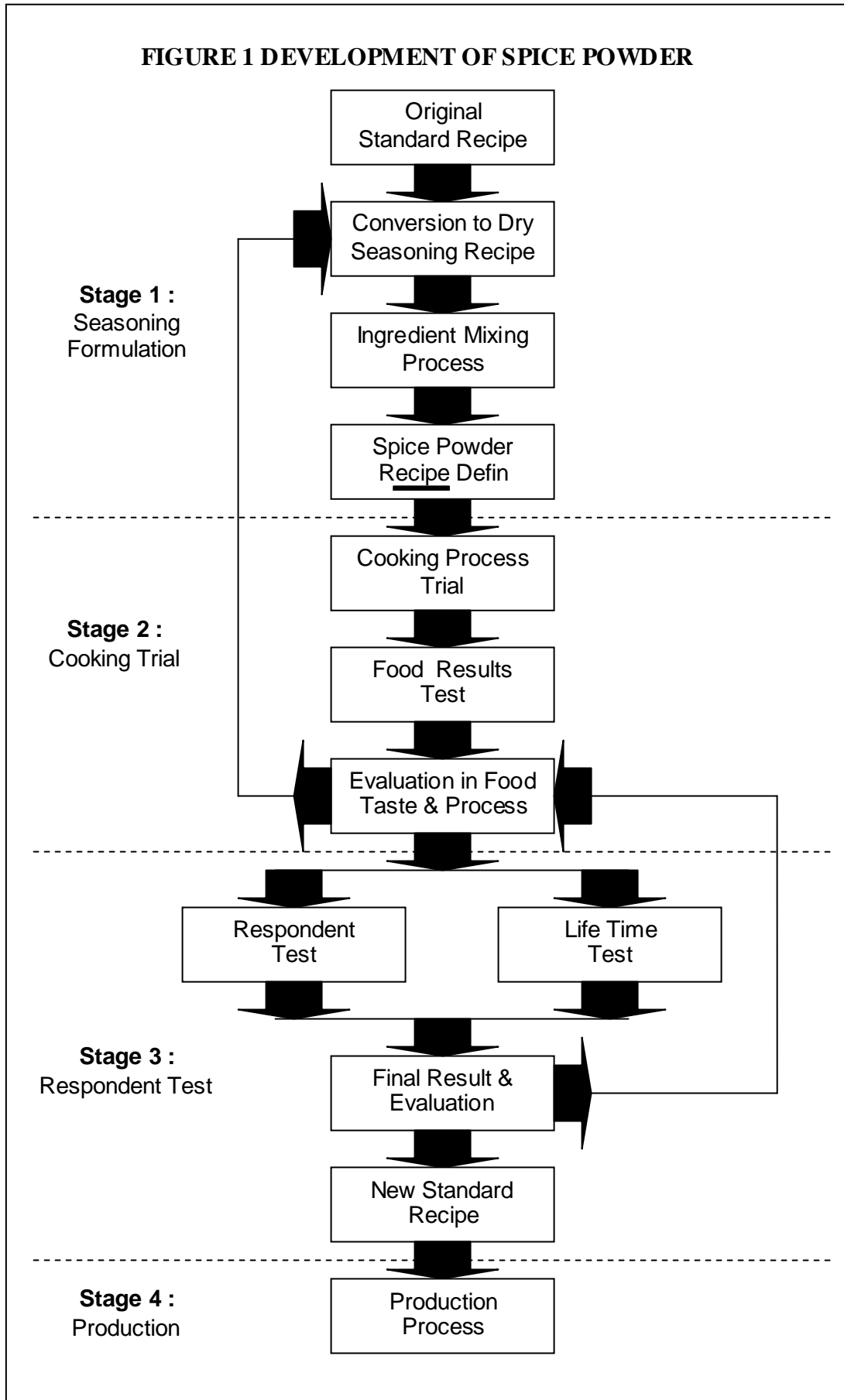
In this stage, the recipe is applied for high volume of cooking, and the food product is trialed to some respondents. Questionnaires are given to get some inputs and comments related to food taste, texture, aroma, and performance. Respondent test can be repeated if necessary, and new standard recipe will be finalized based on the evaluation from cooking trial (stage 2) and respondent test. Product life time is also tested.

Stage 4 - Production

Production of spice powder for each recipe is conducted based on the new standard spice powder recipe. It is produced and packed in PT AGFI manufacture using the same stages of drying process and quality controls as pure spice powders.



FIGURE 1 DEVELOPMENT OF SPICE POWDER



RESULTS AND DISCUSSION

Focused on:

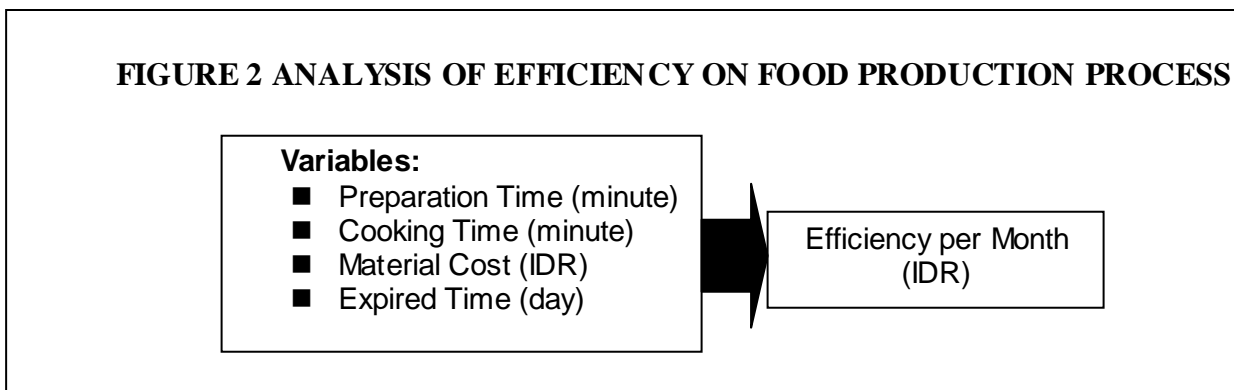
- The comparison of cooking steps of conventional and spice powder process.
- The comparison between conventional and spice powder cooking process. The variables being evaluated are preparation time, cooking time, material cost and life time. The cost effectiveness is calculated based on the comparison.
- The effectiveness of food production according to users (cooks) evaluation, including cooking process and product characteristics and results, and its application in relation to hygiene and sanitary of working area.
- Statistical results from respondent test on food taste, aroma, texture, and performance.
- The recipe to be discussed in this evaluation is Beef Rendang, one of Indonesian traditional foods.

Comparison of Cooking Steps Between Conventional and Spice Powder

Table 2 lists all ingredients for conventional and spice powder cooking process, and Figure 3 illustrates the difference between conventional and spice powder cooking process of beef rendang. In conventional cooking, peeling, washing, and grounding process of all raw spice materials must be completed, whereas in spice powder cooking, all raw spice materials (15 types of spices, such as red chili, shallot and garlic) have been in powder form, therefore the preparation process can be avoided. This will be a significant benefit for saving preparation time.

Comparison Between Conventional and Spice Powder Cooking Process

The comparison of the cooking process between conventional and spice powder method is analyzed, and the effectiveness of spice powder is shown in production cost calculation per month (Figure 2).



One kg of beef rendang was produced to calculate the cooking time and material cost. The results can be seen in Table 1.

TABLE 1 COMPARISON ON EFFECTIVENESS BETWEEN BEEF RENDANG USING CONVENTIONAL AND SPICE POWDER METHODS

Variable	Conventional	Spice Powder
1. Cooking Process (min)		
Preparation Time	20	10
Cooking Time	160	140
Effectiveness (%)	16.67	
2. Material Cost (IDR)		
	55,075	49,920
Effectiveness (%)	9.36	
3. Expired Time (Day)		
	3	4

In Table 1, it is shown that the preparation time for spice powder cooking process is 10 minutes faster than that in conventional process. As discussed previously, this is because raw spice material peeling, washing, cleaning and grounding can be avoided. Moreover, the cooking time for spice powder is 20 minutes faster than conventional time. This is because powder form can disperse in coconut milk more easily, whereas in conventional process, the grounded spice materials have to be cooked and waited until all mixed together. As a result, cooking process using spice powder is 16.67% more effective than conventional process.

In terms of material cost, it can be seen in Table 1 that cost for spice powder is IDR 5,155,- lower than using raw materials. Therefore, it is 9.36% more cost effective than conventional process. After both products were left in a room temperature, beef rendang from conventional process was spoiled on the third day, while spice powder product was spoiled on the fourth day. This shows that spice powder product can last longer than conventional products.

Based on Table 1, cost efficiency per month for using spice powder can be analyzed as follow:

Assumption:

- Salary for 2 cooks = 2 x IDR 1,000,000,-/month = IDR 2,000,000,-/month
- Daily cooking = 1 kg

Based on Table 1:

- Cooking process efficiency = 16.67% x IDR 2,000,000,- = IDR 333,400,-/month
- Material efficiency = IDR 5,155,- x 30 days = IDR 154,650,-/month

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COST EFFICIENCY OF REMPAH SPICE = IDR 488,050,-/month

TABLE 2 COMPARISON OF INGREDIENTS FOR BEEF RENDANG USING CONVENTIONAL AND SPICE POWDER

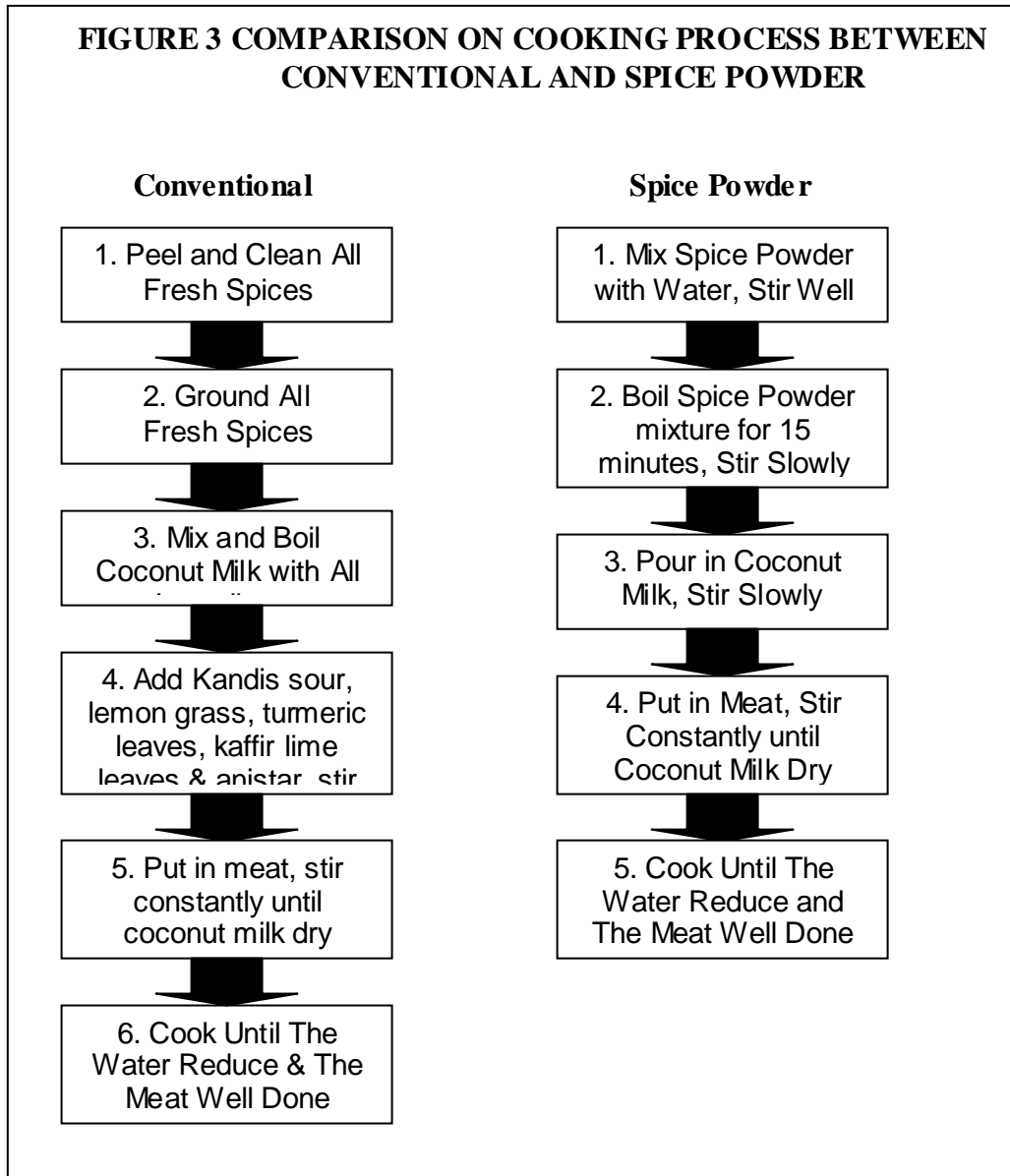
1. CONVENTIONAL

MATERIAL	WEIGHT	COST (IDR)
~ Red Chili*	300 g	2.100,00
~ Shallot*	60 g	510,00
~ Garlic*	40 g	280,00
~ Walnut*	30 g	300,00
~ Cumin*	2 g	27,00
~ Coriander*	2 g	80,00
~ Anister*	2 g	100,00
~ Lemon Grass*	10 g	40,00
~ Galingale*	10 g	25,00
~ Ginger*	10 g	65,00
~ Kaffir Lime Leaves*	10 g	18,00
~ Salt*	20 g	38,00
~ Tamarind*	10 g	100,00
~ Cloves*	0.8 g	44,00
~ Turmeric Leaves*	6 g	48,00
~ Beef	1 kg	39.000,00
~ Coconut Milk	1000 ml	12.300,00
~ Water	250 ml	~
TOTAL		IDR 55,075.00

2. SPICE POWDER

MATERIAL	WEIGHT	COST (IDR)
~ Spice Powder**	48g	6.000,00
~ Beef	1 Kg	39.000,00
~ Coconut Milk	400 ml	4.920,00
~ Water	250 ml	~
TOTAL		IDR 49,920.00

* The ingredients are formulated and mixed to spice powder (**)



Effectiveness of Food Production According to Users Evaluation

Spice powder was trialed to 7 cooks from catering industry, restaurants and hotels in Bogor area. Questionnaires on the effectiveness of cooking process using spice powder compared to conventional process are given to the respondents. The results can be seen in Table 3.

TABLE 3 PERCENTAGE OF RESPONDENTS ON RENDANG BEEF COOKING PROCESS USING SPICE POWDER COMPARED TO CONVENTIONAL PROCESS

A. Process	Percentage (%)		
	Easy	Fair	Difficult
Preparation	100	-	-
Cooking Process	100	-	-
B. Product Result	Good	Fair	Poor
Taste	86	14	-
Aroma	29	71	-
Performance	100	-	-
C. Working Area	Good	Fair	Poor
Hygiene	100	-	-

It can be seen from Table 3 that all users mentioned that preparation and cooking process using spice powder was easier than conventional process. For the end product, all users indicated that the food performance was good. The majority of the users said that the taste was good (86%), and the aroma was fair (71%). In addition, all users stated that using spice powder resulted in hygienic (clean) kitchen area.

There are some additional comments from the users on spice powder in food production. The comments are:

- Recipe with spice powder is simpler than conventional cooking process, as it reduces preparation process in raw spice materials.
- Save time and very effective, especially for high-volume cooking. As a result, it will make the delivery service time faster.
- The powder is easy to disperse in food mixes; consequently, it reduces cooking time.
- There is no different in aroma, taste and color of the products from conventional recipe.
- No need for extra cook helpers to assist cooking preparation.
- Spice powder can help cooks to produce products with consistent standard of taste.

In terms of hygiene and sanitary in working area and environmental concern, the users indicated the following comments:

- Less kitchen waste and usage of raw spice materials, which result in clean cooking process.
- No peeling and cleaning process, therefore less use of water.
- No need for excessive raw spice material supply, as all spices have been in powder form.
- Practical storage, and no need for large storage space. The only space needed is for jars, bottles and containers for the powder. Keeping good storage will make the powder last for months.

Respondent Food Test and Results

To obtain some inputs on food product using spice powder, a food test on Beef Rendang was conducted. The aim of this test is to compare the results of Beef Rendang cooked using conventional recipe and spice powder. Beef Rendang products were given to 44 (for conventional product) and 43 (spice powder products) respondents. Respondents were asked to fill in the questionnaires on the taste, aroma, texture and performance of both products.

Beef Rendang by Conventional Process

TABLE 4 PERCEPTION OF RESPONDENTS ON RENDANG BEEF PRODUCT COOKED BY USING CONVENTIONAL PROCESS

Variable	Percentage (%)		
	Good	Fair	Poor
Taste	29	64	7
Aroma	10	71	19
Texture	14	70	16
Performance	17	71	12

It can be seen in Table 4 that from 44 respondents who tasted beef rendang with conventional process, only 29% of the respondents claimed that the taste is good, and the percentages for aroma, texture and performance were only around 10-17%.

Beef Rendang by Spice Powder

TABLE 5 PERCEPTION OF RESPONDENTS ON RENDANG BEEF PRODUCT COOKED BY USING SPICE POWDER

Variable	Percentage (%)		
	Good	Fair	Poor
Taste	42	49	9
Aroma	26	56	18
Texture	14	62	24
Performance	28	56	16

Compared with conventional product, it can be seen in Table 5 that there was a significant increase of percentage for taste, from 29% to 42%. For good aroma, the percentage of spice powder product (26%) is also higher than conventional product (10%). For product texture, the percentage is the same (14%). For performance, the percentage also increased from 17% to 28%.

MANAGERIAL IMPLICATION

This advanced cooking process is expected to change the paradigm of conventional to more effective, efficient and clean cooking process, which leads to more healthy, standard and natural quality and taste of food. This technology can be implemented in all types of food industry.

CONCLUSION

All issues from catering, restaurants, and hotels related to the way to increase the effectiveness of food production in particular for high volume cooking, can be solved by applying spice powder in daily cooking process. Spice powder which has been developed in some intensive control and evaluation in the past few years, has shown some excellent benefits to food industry as follows:

- The most significant time saving factor for spice powder cooking process is no requirement for preparation time of raw spice materials. All raw spice materials are substituted by pure powder, therefore the need for peeling, cleaning, washing and grounding process can be avoided.

- Spice powder makes cooking cheaper, faster, and more practical. It can reduce total cost production. Fast cooking process can also result in relatively short delivery time to guests.
- Spice powder can support cleaner cooking process and kitchen area, as well as reduce waste and use of water.
- Spice powder can lengthen product life time.
- From respondents' points of view, compared to conventional products, there is a significant increase on taste, aroma and performance of spice powder product.

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