

CORN SPAGHETTI RICA-RICA SAUCE (COTTI CASA) AS A PASTA DIVERSIFICATION BASED ON LOCAL FOOD

Tri Haryanti¹, Ichda Chayati²

^{1,2}Pendidikan Teknik Boga, Fakultas Teknik, Universitas Negeri Yogyakarta

E-mail: tri.haryanti2016@student.uny.ac.id

ABSTRACT

Many cereals grow in Indonesia such as rice, wheat, durum wheat, rye, and so on. One of the local food-based cereals is corn. This study aims to ¹find a recipe for corn spaghetti products, ²knowing the community acceptance of corn spaghetti products, and ³knowing the nutritional content of corn spaghetti products. The research uses the Research and Development (R & D) method with the 4D development model (Define, Design, Develop, and Disseminate). In this study, the product of corn spaghetti named Cotti Casa (Corn Spaghetti Rica-rica Sauce) with the composition variable of corn flour used was 20%, 30%, and 40%. Data were analyzed by paired T-test and qualitative descriptive. The results showed that corn spaghetti products that could be accepted by the community were in the ratio of corn flour and wheat flour, which was 20%: 80% with criteria in terms of color, aroma, texture, and taste in a very popular way. Besides the nutritional content contained in corn spaghetti products include water content 63.56%, ash 0.37%, protein 7.31%, fat 5.01%, crude fiber 3.57%, carbohydrate 20.18 &, and energy 154.26 kal / g.

Keywords: Spaghetti, corn, corn flour, rica-rica

INTRODUCTION

Many kinds of cereals grow in Indonesia. Cereals or often called cereals or seeds are plants originating from the tribe of grasses and their seeds or grains are taken as a source of carbohydrates. Some types of cereals are a staple food for most of the world's population. Members of cereals are mostly from the tribes of grains such as rice, wheat, sorghum, corn, barley, oat, durum wheat, and rye. One of the local food-based cereals is corn.

Lalujan (2017) states that corn is a crop yield that plays an important role in the dietary pattern of the community after rice. In terms of nutrition, corn is a food source of carbohydrates and proteins. corn contains fat and protein whose amount depends on the age and variety of the corn. Young corn has a lower fat and protein content when compared to old corn. In addition, corn also contains carbohydrates which consist of starch, crude fiber, and pentosan (Muchtadi and Sugiyono, 1989). According to Suarni, the main nutrient

content of corn is starch (72-73%). Simple sugar levels of corn (glucose, fructose, and sucrose) range from 1-3%. 8-11% corn protein consists of five fractions, namely: albumin, globulin, prolamin, gluten, and nonprotein nitrogen. On the other hand, corn has the advantage of being cheap, can be planted on its own, suitable for all types of land, anyone can grow corn.

Utilization of corn, the main product of corn is its seeds (grain). Actually, the seeds are fruit and seeds that are fused. According to the Head of the Data and Information System for Agriculture, Ketut Kariyasa said that corn production in the four years from 2014 to 2017 was significantly increased. Based on data from the Central Statistics Agency published in online media; in 2014 corn production amounted to 19.0 million tons; then experienced an increase in 2015, 2016; and 2017, namely 19.6 million tons each; 23.6 million tons; and 28.9 million tons. However, the use of corn has not been maximized. In Indonesia most of the corn yield is only used as animal feed, both for poultry and livestock.

According to the Ministry of Agriculture (Ministry of Agriculture), which was published in online media, stated that it provided assistance for corn feed to independent chicken farmers in Malang, East Java. A total of 100 tons of corn feed is given by this agency.

On the other hand, flour has the advantage of being able to form gluten which causes elasticity and is not easily destroyed during the printing or cooking process. However, flour in Indonesia is obtained from imports and has relatively expensive prices. Flour is an imported product because wheat is difficult to grow in Indonesia (Nurbaya and Estiasih, 2013).

Therefore, to reduce the amount of flour imports and to increase the utilization and selling price of corn, a modification of corn flour with high protein flour is made in making pasta. In making this product, corn is made from flour because it makes it easy to mix between flour, corn flour and other ingredients.

According to Nugroho (2017: 1), pasta is a processed food that is usually used in Italian cuisine. Pasta is made from a mixture of flour, water, eggs and salt and has a soft and chewy texture. Pasta is an alternative product to increase the selling price of corn. Most pasta products use imported flour, using semolina flour or flour. In this product, corn is used by making corn flour and substituted with flour for making spaghetti paste.

Based on the background of the problem, it is necessary to do research in order to obtain information about recipes, community acceptance, and nutritional content on corn flour spaghetti products.

METHOD

Types of research

The types of research methods used are R & D (research and development) with 4D development procedures (define, design, development, and, dissemination). R & D (research and development), which is a research method used to produce certain

products, and test the effectiveness of these products, and aims to produce new products through the development process.

1. Define

The first stage is define. At this stage, a description of the specification criteria of 3 reference spaghetti products is carried out to determine the selected reference recipe.

2. Design

Design or design. At this stage the researcher makes the initial product or product design. This stage aims to determine one recipe for the best development product. Spaghetti product specifications developed with the name Cotti Casa (Corn Spaghetti Rica-rica Sauce). .

3. Development

Development or development. At this stage it aims to determine presentation techniques including garnish, plating, and packaging on corn spaghetti development products.

Product development of Cotti Casa through several procedures, namely:

a. Validation I: validation of presentation techniques and organoleptic tests of reference and development products.

b. Validation II: validation of presentation techniques and organoleptic tests of reference and development products.

c. Proximate Test

4. Disseminate

Disseminate, at this stage it aims to determine the level of acceptance of development products on a limited scale and broad scale. Products that have been revised at the development stage are then implemented to the real target, including:

a. The limited scale acceptance test of 30 semi-trained panelists.

b. Large-scale acceptance tests of 60 untrained panelists.

Place and time of research

The Research Place was conducted in the Catering Laboratory, Department of Food

and Clothing Engineering Education, Faculty of Engineering, Yogyakarta State University. Research time January 2019 to May 2019.

Materials and Research Tools

The ingredients needed are high protein flour, corn flour, salt, eggs, water, and cooking oil. While the tools used in the manufacture of products include noodle mills, com, digital scales, measuring cups, trays, pans, strainers, ladles, stoves, measuring tubes, and spatulas. While the tools used in research include forms and stationery and the products to be studied.

RESULTS AND DISCUSSION

The raw material for making Spaghetti in general is high protein flour, but as a main ingredient it is necessary to diversify with corn flour to reduce the import value of wheat flour and increase the use of corn.

1. Define

In the define phase, a product development research proposal was prepared related to the literature review of various aspects of the problem, product and product development process to produce development products to remain in accordance with the characteristics of the reference product. Can be seen in Table 1 and Table 2.

Table 1. Recipe for Spaghetti Pasta Reference Products

No	Nama Bahan	R1	R2	R3
1	High Protein Flour	450 gr	500 gr	250 gr
2	Salt	Sck	-	5 gr
3	Egg	5 item	1 item	2 item
4	Water	-	100 ml	20 ml
5	Oil	15 ml	1 sdt	-

Table 2. Selected Spaghetti Pasta Reference Products Recipe

No	Nama Bahan	R3
1	High Protein Flour	250 gr
2	Salt	5 gr
3	Egg	2 item
4	Water	20 ml

2. Design

At this stage the design of the reference product has been developed. Based on the recipe design that has good results in taste, aroma, color, and texture, a comparison

between terung corn and high protein flour is 20%: 80% (Table 3). Besides that, the recipe for developing rica sauce is also obtained (Table 4).

Table 3. Recipe for Development of Corn Flour Spaghetti

No	Nama Bahan	Acuan	20%	30%	40%
1	High Protein Flour	250 gr	200 gr	175 gr	150 gr
2	Salt	-	50 gr	75 gr	100 gr
3	Egg	5 gr	5 gr	5 gr	5 gr
4	Water	2 item	2 item	2 item	2 item
5	High Protein Flour	20 ml	20 ml	20 ml	20 ml

Table 4. Development Recipe for Sauce Rica Tabel 4.

No	Nama Bahan	Jumlah
1	Chicken meat	500 gr
2	Pipile Corn	150 gr
3	Cooking oil	2 tbs
4	Red onion	5 item
5	Lime leaves	5 item
6	Garlic	3 sheet

7	Lemongrass	2 stem
8	Curly chili	5 item
9	Cayenne pepper	5 item
10	Ginger	3 cm

The production of Cotti Casa products is in accordance with the concept of developing Spaghetti products that have been made at the design stage. The researcher tested by

comparing the prescriptions with prescription development and concluded by the researchers which comparison of the better results is shown in Table 5.

Table 5. Test Results for Making Cotti Casa with Multiple Comparisons

Comparison	Taste	Color	Texture	Aroma
20%	very suitable	very suitable	very suitable	very suitable
30%	very suitable	very suitable	Elasticity is reduced, rough, easily broken	very suitable
40%	rather weak	very suitable	Elasticity is reduced, rough, easily broken	suitable

From the results of trials of various comparisons of the amount of cornmeal use, it can be seen that there are significant differences in the texture with the use of corn flour 30% and 40%, namely elasticity is reduced, rough, and easily broken. Based on the overall results, researchers chose corn flour spaghetti with a substitution of corn flour of 20% of the total flour in the reference recipe.

3. Development

At this stage the validation process is carried out by the expert by making 2 comparisons of products, namely reference products and development products. Validation was done twice to obtain the best results from Cotti Casa's development products. The results of validation I can be seen in Table 6.

Table 6. Results of Validation I

Characteristics	Reference Product	Development Products
Color	Yellowish white	Yellowish white
Aroma	Flour	Flour
Texture	Elastic	Elastic
Taste	Tasteful	Tasteful
Whole	Well	Well

From the results of the table, it can be concluded that there is no significant difference between the reference products and the development products, but experts suggest

that the plating is more attention and the pale sauce color is improved. After conducting validation I, the next stage is validation II which can be seen in Table 7.

Table 7. Results of Validation II

Characteristics	Reference Product	Development Products
Color	4	4
Aroma	4	4
Texture	4	4
Taste	3	3
Whole	3,75	3.75

Can be seen from the results of validation II as a whole so that it can be concluded that the development product has no difference with the reference product.

Expert assessments are worthy of a limited scale test for semi-trained panelists.

The next step after validation is the proximate analysis carried out on spaghetti

products weighing 100 grams. Proximate analysis is a method of chemical analysis to identify nutrient content such as water, ash, protein, fat, crude fiber, carbohydrate, and

energy. The results of this analysis can be used as a reference for the nutritional value of the packaging label. The following results of proximate analysis are presented in Table 8.

Table 8. Proximate Analysis Results

Analysis	Deuteronomy I	Deuteronomy II
Water	63.60%	63.56%
Ash	0.62%	0.37%
Protein	7.22%	7.31%
Fat	5.29%	5.01%
Coarse fiber	3.48%	3.57%
Carbohydrate	19.80%	20.18%
Energy	154.91 kal/g	154.26 kal/g

Proximate analysis (Table 8) produces the highest energy content compared to other

substances. While the content of ash has the least amount compared with other substances.

4. Disseminate

Organoleptic tests by semi-trained panelists were carried out at the Chemistry Laboratory of Food and Clothing Engineering

Education, Faculty of Engineering, Yogyakarta State University with a total of 30 panelists. The results are shown in Table 9.

Table 9. Semi-Trained Panelist Organoleptic Tests

Characteristics	Reference Product	Development Products
Color	3.03 ^a	3.61 ^b
Aroma	3.40 ^a	3.27 ^a
Texture	3.13 ^a	2.93 ^a
Taste	2.83 ^a	2.90 ^a
Whole	3.07 ^a	3.07 ^a

Can be seen in Table 9, the color of spaghetti development is higher than the reference. This is because the color of the development product is influenced by corn flour. The aroma of the reference product is higher than the development product. This is because the reference product is not substituted with other flour so that the distinctive aroma of flour. In textures, reference products are higher than development products. In taste, the product development is higher than the reference

product. This is due to the use of the sauce used on spaghetti. However, the characteristics of the aroma, texture, taste between reference products and development products are not significantly different. As for the colors between the reference products and the development of real differences.

Furthermore, at the disseminate stage held at the end of the exhibition the project was conducted by 60 untrained panelists. The panelist sensory test results are presented in Table 10.

Table 10. Untrained Sensory Test Results

Characteristics	Reference Product	Criteria
Color	3.53	Very liked
Aroma	3.48	Like it
Texture	3.33	Like it
Taste	3.56	Very liked
Whole	3.55	Very liked

From the results of testing the disseminate stage, the average untrained panelist was very fond of the product of Cotti Casa (Corn Spaghetti Rica-rica Sauce) in terms of color and taste. This is due to the presence of corn flour which affects the color to be brighter and taste due to the addition of sauce. The texture and aroma are preferred

CONCLUSION

1. From this study the recipe for corn flour spaghetti products with 200 gr of high protein flour, 50 grams of corn flour, 5 grams of salt, 2 eggs and 20 ml of water.
2. The semi-trained panelist sensory test results of 30 people and 60 untrained panelists produced data that overall panelists liked the product of development, namely Cotti Casa (Corn Spaghetti Rica-rica Sauce) with a substitution of 20% corn flour, indicating that the product could be accepted in the community.
3. The proximate analysis shows that at 100 grams of corn flour spaghetti contains 63.56% moisture content, 0.37% ash, 7.31% protein, 5.01% fat, 3.57% crude fiber, 20.18% carbohydrate, and 154.26 cal / g energy in the second yield .

THANK-YOU NOTE

Thank you, the author, to all parties involved in the product development process of Cotti Casa (Corn Spaghetti Rica-rica Sauce):

1. Ichda Chayati, MP. as a supervisor and expert.
2. Dr. Marwanti, M.Pd. as the expert.
3. Class D of Technical Education in 2018 as semi-trained panelists.
4. Exhibition visitors for the final 2019 Project as panelists are not trained.

REFERENSI

[1] Ariyani, Sukma dan Asmawit. 2016. *Penggunaan Tepung Jagung Kalimantan Barat sebagai Bahan*

because of the presence of corn flour from spaghetti and sauce. This shows overall that the Cotti Casa product is acceptable in the community. In addition, this product can be developed as a functional food to support the movement of Indonesian local food use.

Baku Pembuatan Mie Kering. Jurnal Dinamika Penelitian Industri volume 27(2) halaman 76 – 81.

[2] Chayati, Ichda. 2016. *Labsheet Pengendalian Mutu Pangan.* Yogyakarta: UNY

[3] Gisslen, Wayne. 1946. *Professional Cooking Seventh Edition.* United States of America: Wiley

[4] Indrianti, Novita. Dkk. 2013. Pengaruh Penggunaan Pati Ganyong, Tapioka, dan Mocaf sebagai Bahan Substitusi terhadap Sifat Fisik Mie Jagung Instan. Jurnal Agritech volume 33(4) halaman 391 - 398

[5] Istianur, Ilyas. 2018. "Kementrian Berika 100 Ton Jagung Pakan ke Peternak di Malang". Media Online. Diakses pada www.liputan6.com tanggal 13 Februari pukul 00.17 WIB

[6] Lalujan, Lana. Dkk. 2017. *Komposisi Kimia dan Gizi Jagung Lokal Varietas 'Manado Kuning' sebagai Bahan Pangan Pengganti Beras.* Jurnal Teknologi Pertanian volume 8 (1) halaman 47 - 54

[7] Mulyatiningsih, Endang. Dkk. 2017. *Kumpulan Resep Masakan Indonesia.* Yogyakarta: Program Studi Pendidikan Teknik Boga.

[8] Mulyatiningsih, Endang. 2011. *Metode Penelitian Terapan.* Yogyakarta: Alfabeta

[9] Suarni. Dkk. *Struktur, Komposisi, dan Nutrisi Jagung.* Jurnal Teknik Produksi dan Pengembangan halaman 410 - 426

[10] Yasmin, Puti. 2018. *Produksi Jagung Hingga Juli 2018 Capai 19 Juta Ton.* Jakarta: detikFinance pada finance.detik.com diakses pada 23 Oktober 2018 pukul

- [11] Rosliyani, Noni. (2008). *Kumpulan Resep Sedap Mantap*. Yogyakarta: Percetakan Galangpress
- [12] Suarni. *Struktur, Komposisi, dan Nutrisi Jagung*. Bogor: Balai Penelitian Tanaman Serealia pada balitsereal.litbang.pertanian.go.id diakses pada 23 Oktober 2018 pukul 11.02
- [13] Sugiyono. 2009. *Metode Penelitian Pendidikan*. Bandung: Alfabeta
- [14] Sukardi. 2013. *Metodologi Penelitian Pendidikan*. Jakarta: Bumi Aksara
- [15] Sutarjana, Julie. (1974). *Pandai Masak Jilid 2*. Jakarta: PT Kinta
- [16] Tri, Wiwin. 2017. *Substitusi Tepung Terigu dengan Tepung Biji Alpukat Terhadap Sifat Fisik Cookies*. Semarang: Universitas Diponegoro
- [17] Utami, Putri. 2017. *Pengaruh Substitusi Tepung Semolina Terhadap Karakteristikmakaroni Ubi Jalar Ungu Varietas Ayamurasaki*. Bandung: Universitas Pasundan
- [18] Wahyuningtias, Dianka. *Uji Kesukaan Hasil Jadi Kue Brownies Menggunakan Tepung Terigu dan Tepung Gandum Utuh*. Jakarta Barat