

Influence of Addition of Moringaoleifera Lam Leaves Flour to Mocaf-Based Noodles

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Abstract—Noodles as an alternative to substitute the rice, adding the flour leaves moringaoleifera lam on mocaf based noodle is expected to increase the variance of noodle product which is rich in nutrition. This research purpose is to know the influence of addition of moringaoleifera lam leaves crumbs affecting the taste, the color, the smell and the texture of the noodles. This research sample are mocaf moringaoleifera lam leaf flour based noodles with 5%, 10% and 15% of addition. It is fully tested to 30 respondents with using data analysis which is one-way ANOVA. The results of the addition of moringaoleifera lam leaves flour in making noodle affecting to the taste, but will not affect the color, the smell of and texture of noodles.

Keywords—noodles; moringaoleifera lam leaves flour; mocaf flour.

I. INTRODUCTION

Noodles is a very popular food product by a general audience, not just Indonesian society, however many other countries also likes noodles. In Indonesia the kind of noodle that is circulating is very wide, starting with various flavors of instant noodles or other noodle types that come from foreign countries like pasta from Italy, Shahe from China, etc. Noodles is a practical food that is always inviting taste fans and made a substitute Alternative of rice and accepted by all walks of life. Fans were not limited to those of adults, but also children [14].

The habit of consuming fast noodles without additional vegetable and protein (egg and chicken) become inappropriate eating habits because not all the nutrients that your body needs are met. Noodle industry in Indonesia using the main ingredients are wheat flour noodles is a product of refined wheat that cannot grow in areas in Indonesia and a source of carbohydrates. While in Indonesia, there is a lot of food that's been researched and can be used as a substitute for wheat flour. One of them is the cassava flour or more often called Mocaf (modified cassava flour).

The latest breakthrough is mocaf flour as an ingredient substitution wheat. Mocaf itself comes from a fermented cassava tuber [10]. Cassava starch modification on engineering with fermentation engineering aims to produce a flour that can be minimize the nature of less favored destinations with by the consumers and improve Physical chemistry flour properties making it suitable for raw materials all products [10]. The downside of flour mocaf no gluten and

low protein content. The protein in nuts i.e. amounting to 23.7 g protein per 100 g nuts, but in addition to beans there are plants that belongs to the high protein content than other types of vegetables, namely moringaoleifera lam leaves [16]. Moringaoleifera Lam is a plant of high nutritional value and can be grown throughout the tropics and sub-tropical. Every part of the plant has a very important content, such as (1) vitamin A (alpha & beta-carotene), B, B1, B2, B3, B5, B6, B12, C, D, E, K, folate (folic acid), biotin, (2) mineral (Chromium, calcium, copper, fluorine, iron, manganese, magnesium, molybdenum, phosphorus, potassium, sodium, selenium, Sulphur, zinc), (3) essential amino acid (isoleucine, leucine, lysine, methionine, threonine, tryptophan, phenylalanine, valine), amino acid (4) non-essential (alanine, arginine, aspartic acid, cysteine, glutamine, glycine, histidine, proline, serine, tyrosine) [14].

Leaves of moringaoleifera lam flour which has a protein content greater than the leaves of moringaoleifera lam who is still fresh, besides the use of flour leaves moringaoleifera lam is more effective because it can be stored within a relatively longer time. Based on this, then this research aims to know the influence of proportion of leaf flour noodles in the making for moringaoleifera lam get best results and reviewed from (flavor, the smell of, color, and texture).

II. METHODS

This study used a randomized complete design (RAL), for testing against the mokaf-based noodles combined with flour moringaoleifera lam leaves with 3 different treatment is given, the variables examined a) non IE variable amount of flour leaves moringaoleifera lam, b) variable bound to a result of noodle (flavor, the smell of, color, and texture). The population in this research is noodle based mocaf flour leaves moringaoleifera lam plus. The sample used include (x 0) mocaf based noodles without the addition of moringaoleifera lam leaves flour. (X 1) noodles with 500 g flour mocaf composition by the addition of 50 g moringaoleifera lam leaves flour. (X 2) noodles with 500 g flour mocaf composition with the addition of 100 g. flour moringaoleifera lam leaves. (X 3) noodles with 500 g flour mocaf composition with the addition of 150 g moringaoleifera lam leaves flour that are dealt to each of the 30 respondents with the weight of a sample of 25 g.

TABLE 1. ANALYSIS OF VARIANTS OF TASTE-BASED NOODLES MOCAF

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	6.022222	2	3.011111	3.230	0.04434	3.101296
Within Groups	81.1	87	0.932184			
Total	87.12222	89				

(1) 15 sample to respondents at random with the vulnerable age of 15 to 45 years. (2) 15 sample to respondents trained SMKK grade 11 students. Place the collection the data used in this research is SMK Country 3 Kediri, January 2017.

Method of data collection in this research are experiments and tested organoleptic or sensory test or test remote testing is a way by using the senses as the main tool for the measurement of the power acceptance of products based on fondness, willpower. Organoleptic conducted in this research include a taste test, color, the smell of, and texture. The analysis used one-way analysis of variance (ANOVA-one-way), is used to investigate the relationship between the dependent variable with one or more independent variables

III. RESULTS

The results of the data assessment of organoleptic flavor that is calculated using the Microsoft excel tabulated data, obtain the following data.

Based on the results of research on the flavor of the noodles with the addition of moringaoleifera lam leaves flour on noodle based mocaf, retrieved the tabulated data resulting in 3.230 F with value P of 0.04434. H1 means received and H0 is rejected because the value F count greater than the value of F table, it means there is the influence of the addition of moringaoleifera lam leaves flour on noodle based mocaf in terms of taste (Table 1).

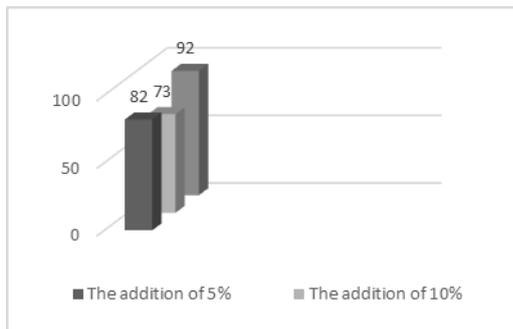


Fig 1. Response to panelist about taste

Based on the results of research on noodle color with the addition of flour leaves moringaoleifera lam on mocaf based noodle, retrieved the tabulate data resulting in F of 0.445 and P value of 0.642 calculated. It means H0 is accepted and H1 is rejected, because the value F count is smaller than the value of the F tables, and it means there is no influence of addition of moringaoleifera lam leaves against the results on noodle-based mocaf in terms of color (TABLE II).

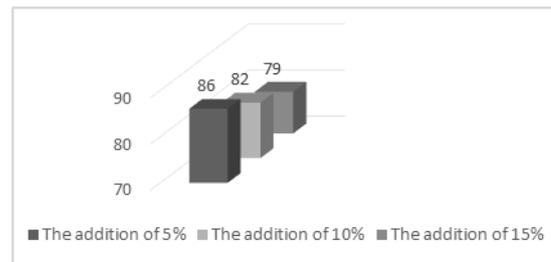


Fig. 2. Response to panelist about color.

Based on the results of the research on the smell of noodles with the addition of flour-based moringaoleifera lammocaf, retrieved the tabulated data resulting in 0.305 F with value P of 0.737491 calculated. It means H0 is accepted and H1 is rejected because the value F count is smaller than the value of the F tables, it means there is no influence of addition of moringaoleifera lam leaves flour against the results on noodle-based mocaf in terms of the smell (TABLE III).

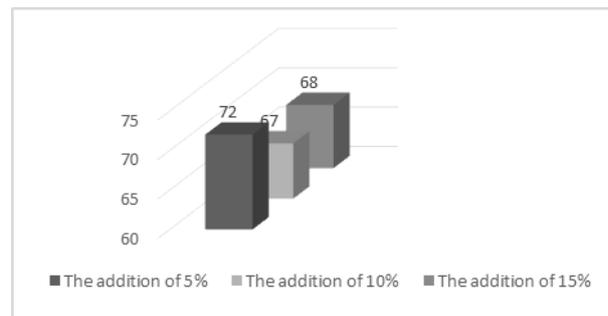


Fig. 3. Response to panelist about the smell of

TABLE II. ANALYSIS OF VARIANTS OF COLOR-BASED NOODLES

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.82	2	0.411111	0.445	0.642	3.101296
Within Groups	80.3	87	0.922989			
Total	81.12222	89				

TABLE III. ANALYSIS OF VARIANTS OF THE SCENT-OF NOODLE BASED MOCAF.

Source of Variation	SS	df	MS	F		P-value	F crit
Between Groups	0.466667	2	0.233333	0.305		0.737491	3.101296
Within Groups	66.43333	87	0.763602				
Total	66.9	89					

Based on the result of the research on the noodle texture with the addition of flour based moringaoleifera lam mocaf, retrieved the tabulated data resulting in 0,426 F with the value of P 0.65 calculated. That means H0 is accepted and H1 is rejected, because the value of calculated F is much smaller than the value of F on table, it means there are no effect regarding the addition of moringaoleifera lam leaves flour against the result, on noodle based mocaf in terms of textures (TABLE IV).

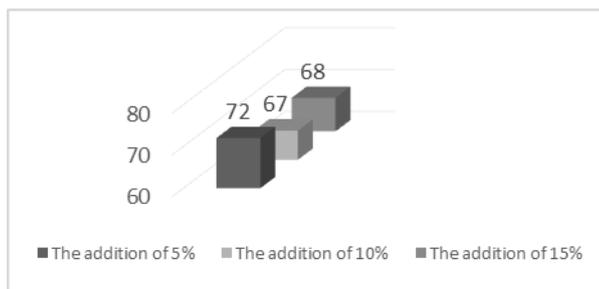


Fig. 4. Response to panelist about textures

IV. DISCUSSION

• *The Addition of Mocaf Flour Based Noodle*

Testing the taste of food can be done with mechanical test (method of instrument) or by sensing, where the analysis in determining the structure of a Food flavorings and sensory senses required taster [15]. Based on the graph 1 on a third treatments i.e. the addition of 15% flour moringaoleifera lam leaves the panelists gave as many as 92 scoring with an average of 3.1. Savory flavors which became characteristic of the noodle-based mocaf. The addition of flour based noodle in moringaoleifera lam leaves mocaf gives a sense of the typical, with the addition of moringaoleifera lam leaves flour give a tangible influence on noodle based mocaf. [4] the addition of leaf protein concentrates moringaoleifera lam and carrageenan give real effect ($\alpha = 5\%$) against power broken, elasticity, cooking time, cooking loos, hydration, volume development and the degree of hue on the dried noodles tersubstitusimocaf [15].

TABLE IV. ANALYSIS OF VARIANTS IN THE TEXTURE OF THE NOODLE BASED MOCAF

Source of Variation	SS	df	MS	F	P-value		F crit
Between Groups	1.088889	2	0.544444	0.426	0.65		3.101296
Within Groups	111.2333	87	1.278544				
Total	112.3222	89					

• *The addition of moringa oleifera lam leaves flour did not affect the texture of the mocaf based noodle*

Testing the textures of food can be done with mechanical test (method of instrument) or by sensing, where the analysis in determining the texture of a food needed senses, and it is

• *The addition of moringa oleifera lam leaf flour does not affect the color of the mocaf based noodle*

The green color into the natural color of the moringaoleifera lam leaves. So based on graph 2 on the treatment I the panelists gave as many as 86 scoring with an average of 2.9. Where is the color light green color dominated the moringaoleifera leaf flour lamocaf noodle, which is characteristic of the moringaoleifera lam leaves if flour will still be green, so if mixed noodle dough mocaf will give you color light green. With the colors on the noodles, make the noodles more attractive and improving the quality of food products as well as increasing consumer acceptance of [1]. There is the influence of the addition of pure leaf moringaoleifera lam against color [4]. It proves that despite the similarities of the materials used in this research, when the technique of processing different then the research results also provide different influences. While in this study not pure moringaoleifera lam leaves but moringaoleifera lam leaves crumbs. There is a difference of the results on the use of noodle puree greener than by the use of flour [14].

• *The addition of moringa oleifera lam leaves flour did not affect the scent of mocaf based noodle*

The scent is the smell typical of a food or drink that provides the identity of the food or the drinks [11]. Based on the graph 3 on the treatment one of the panelists gave as many as 72 scoring with an average of 2.4. Where the lack of delicious smell resulting from noodle mocaf with additional flour moringaoleifera lam leaves. Which results from the treatment I received and H0 H1 is denied, it can be concluded that there is no influence of addition of flour based noodle in moringaoleifera lam leaves mocaf against scent. In the circumstances the noodles cooked mocaf retesting puree leaves and powdered moringaoleifera lam leaves against color, firmness and elasticity of the noodles cooked mocaf, but does not affect the smell of, shape, flavor, and cooked noodles fondness mocaf [4].

taste sensing [11]. So based on chart 4 on treatment to two of the panelists gave as many as 80 with a scoring average of 2.7. Where the chewy texture that became characteristic of the noodles with the addition of flour mocaf moringaoleifera lam leaves, ripe mocaf noodles there are circumstances influence puree leaves and powdered leaves moringaoleifera lam against

color, firmness and elasticity of the noodles cooked mocaf, but does not affect the smell of, shape, flavor, and cooked noodles fondness mocaf [14].

V. CONCLUSION

• Summary

▪ From the analysis of the above data, the addition of moringa oleifera lam leaves flour to taste mocaf based noodle on the third treatment on IE with the addition of 15% moringa oleifera lam leaves flour, acquire 92 number of options.

▪ The addition of moringa oleifera lam leaves flour has no effect on color-based mocaf noodles on the first treatment with addition of 5% moringa oleifera lam leaves flour, obtained the 86 number of options.

▪ The addition of moringa oleifera lam leaves flour has no effect against the scent of mocaf based noodle on the first treatment with the addition of 5% moringa oleifera lam leaves flour, acquire 72 number of options.

▪ The addition of moringa oleifera lam leaves flour has no effect against the texture of the mocaf based noodle on the first treatment with the addition of 5% moringa oleifera lam leaves flour, acquire 72 number of options.

• Advice

▪ The results of this research, the noodles based mocaf moringa oleifera lam leaves flour with the addition, could be made as an alternative choice of main dish or main course.

▪ Given the large number of nutrient content in the leaves of the moringa oleifera lam leaves flour, there is a need to further research for this type of food, so it can be served as children's snacks.

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