International Journal of Food Science and Nutrition
ISSN: 2455-4898; Impact Factor: RJIF 5.14
Received: 06-01-2019; Accepted: 09-02-2019
www.foodsciencejournal.com
Volume 4; Issue 2; March 2019; Page No. 16-18

Preparation of instant holat spices with two formulas and sensory evaluation

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Abstract
Holat is an indigenous traditional food of Indonesia that is a typical food of Tapanuli Selatan, Sumatera Utara. The objectives of this study were to prepare and compare the consumer acceptability of instant holat spices. The sensory characteristics of fresh and dry ingredients formulas were analyzed. Instant holat spices from dry and fresh ingredients formulas showed a significant differences ($p < 0.05$) from colour characteristics and overall acceptability. The formula of dry ingredients with 25 g shavings of the Balakka stem, 20 g onion, 10 g garlic, 3 g ginger, 5 g spring onion, 5 g lemongrass, and 4 g salt were highly acceptable after cooking with tilapia by panellists regarding taste and aroma than the formula of fresh ingredients. Holat product of dry and fresh spices showed a significant difference ($p < 0.05$) for aroma and taste. Further research is the physicochemical and microbiological quality of the holat product.

Keywords: formulas, instant holat spices, preparation, sensory evaluation

1. Introduction
Holat is an indigenous traditional food of Indonesia that is a typical food of the region Tapanuli Selatan, Sumatera Utara, Indonesia. Over time, traditional food began to disappear because of the difficulty for making and the need for raw materials. However, with technology, instant food can be produced to facilitate traditional food production [1, 2]. Homemade spices that time-consuming process for prepare had been replaced by instant spices [3]. Furthermore, the ingredient of spices, Balakka (Indian gooseberry) stem is difficult to get at the market. Therefore, the instant of holat spices very practical in preparation and taking only a short time to serve.

Phyllanthus emblica Linn. (syn. *Emblica officinalis*), also known as Aamla or Amla in Hindi, Balakka in Bahasa is a deciduous tree of the Euphorbiaceae family [4]. Balakka is native to tropical southeastern Asia [5]. Balakka distribution had been studied in the southern part of Sumatera Utara, which is in the Labuhanbatu Selatan district, Padanglawas Utara, Padanglawas, Tapanuli Selatan, Padangsidempuan city and Mandailing Natal district [6]. It is a small to medium sized deciduous tree, 8-18 meters height with thin light grey bark (Figure 1) [5].

The Balakka stem had been known to have antioxidant activity that indicated by the components of phenols, flavonoids, and carotenoids [7]. The use of Balakka stems as a spice in food can make it possible to have an effect on health. In Holat Food, Balakka stems used as spices to get an astringent taste. This taste cause holat food have a unique taste of others traditional food. In addition, holat spices contained onion, garlic, ginger, spring onion, lemongrass, celery and salt. This study was to prepare and compare the consumer acceptability of instant holat spices from the formula of dry ingredients and formula of fresh ingredients.

2. Materials and Methods
2.1 Preparation of Raw Materials
Balakka stem of good quality was purchased from Padanglawas district and prepared the shavings of Balakka stem at University of Sumatera Utara. Other ingredients (onion, garlic, ginger, spring onion, lemongrass, celery, and salt) were purchased from the local market. Balakka stems and all other ingredients were thoroughly sorted.

2.2 Formulations of fresh ingredients and dry ingredients
In the first formula, the conventional process for holat spices had utilized with fresh ingredients. The formulation of fresh ingredients was prepared as shown in Table 1. All ingredients were cooked in 400 mL water and the liquid product was dried in an oven (cabinet dryer) at 60 ºC for 18 hours. The dried product was packed and kept at room temperature (28±2 ºC) until further use. This product is called as a result of fresh ingredients formulations.

Secondly, shavings of Balakka stem, onion, garlic, ginger, spring onion, and lemongrass were dried in an oven (cabinet dryer) at 60 ºC for 8 hours. The whole dried samples except shavings of Balakka stem, spring onion, and lemongrass were ground and sieved off to using NO.40 sieves. All ingredients were mixed to get instant holat spices from the formula of dry ingredients that was prepared as shown in Tabel 2.

2.3 Sensory Characteristic
In sensory evaluation, each sample was subjected to a five-point hedonic scale test (5-like very much, 1-dislike very much) and acceptability of sample was judged by 30 untrained members. The panelists judged the sensory characteristics such as colour and overall acceptability of the product from the two formulas and also colour, aroma, taste and overall acceptability of the holat product after cooked with tilapia (with same treatment). Tilapia is a fish commonly used for making holat.

2.4 Statistical Analysis
Statistical analysis using Paired-Samples T Test and a statistical significance level set at $p < 0.05$.

3. Results & Discussion

The results of sensory evaluation from the formula of fresh and dry ingredients are shown in Table 3. Instant holat spices from dry and fresh ingredients formulas shows significant differences ($p < 0.05$) from colour characteristics and overall acceptability. Panelists preferred instant spices products from fresh ingredients formula. This is caused by the drying of raw materials at the beginning of the dry ingredients formula giving the product a more brownish colour compared to the fresh ingredients formula so that the colour is less preferred. This also had an effect on the overall acceptability of the product so it is less preferred than fresh ingredients formulas. Drying with a certain amount of time can cause the colour to become brown [8-10].

The results of sensory evaluation from holat products after cooking with tilapia are shown in Table 4. The holat product colour and overall acceptability showed no significant difference ($p > 0.05$). This can be caused by instant spices mixed into tilapia and water [11, 12], thus producing products which show the same level of preference for both colour characteristics and overall acceptability.

Whereas in the aroma and taste characteristics, the two holat products were significantly different ($p < 0.05$). Panelists preferred holat products from instant dry holat spices. This can be caused by the concentration of the ingredients used in dried spice products more than the fresh ones. Dry spices are obtained from the drying of fresh ingredients so that dried spice ingredients will have more concentration than fresh ingredients [13]. Thus, the aroma and taste of dried spices will be stronger than that of fresh spices.

4. Tables and Figures

Fig 1: Stem of Balakka

Table 1: The formula of fresh ingredients for instant holat spices

Ingredients	Weight (g fresh)
Shavings of balakka stem	25
Onion (fried in 15 ml of cooking oil until fragrant)	50
Garlic	23
Ginger	4
Spring onion	10
Lemongrass	7
Celery	10
Salt	3

Table 2: The formula of dry ingredients for instant holat spices

Ingredients	Weight (g dry)
Shavings of balakka stem	25
Onion	20
Garlic	10
Ginger	3
Spring onion	5
Lemongrass	5
Salt	4

Table 3: Sensory evaluation of the formula of fresh ingredients and dry ingredients (n = 30)

Characteristics	Fresh ingredients	Dry ingredients
Colour	3.00±0.74a	4.29±0.52b
Overall acceptability	3.43±0.51a	4.00±0.45b

Values with ± standard deviation and different superscript letters in the same row showed significant difference ($p<0.05$) with Paired-Samples T Test.

Table 4: Sensory evaluation of the holat product after cooked with tilapia (n = 30)

Characteristics	Fresh ingredients	Dry ingredients
Colour	3.71±0.69a	3.43±0.51a
Taste	3.71±0.73a	4.29±0.52b
Aroma	3.71±0.69a	4.43±0.50b
Overall acceptability	3.86±0.63a	4.00±0.53a

Values with ± standard deviation and different superscript letters in the same row showed significant difference ($p<0.05$) with Paired-Samples T Test.

5. Conclusions

Holat is an indigenous traditional food of Indonesia that is a typical food of the region South Tapanuli, Sumatera Utara, Indonesia. Over time, holat food began to disappear because of the difficulty for making and Balakka (Indian gooseberry) stem is difficult to get at the market. Therefore, the instant of holat spices very practical in preparation and taking only a short time to serve. Preparation of instant holat spices with dry and fresh formulation and sensory evaluation have been done. Instant holat spices from dry and fresh ingredients formulas showed a significant differences ($p < 0.05$) from colour characteristics and overall acceptability. The holat product of dry and fresh spices after cooking with tilapia showed a significant difference ($p < 0.05$) for aroma and taste. Thus, instant holat spices from dry ingredients can be further produced and analysed for their physicochemical and microbiological qualities so that they can be marketed properly.

6. Acknowledgments

The study was supported by the Lembaga Pengabdian Kepada Masyarakat Universitas Sumatera Utara (Dana BPPTN USU Tahun 2018 sesuai dengan Surat Perjanjian Penugasan Dalam Rangka Pelaksanaan Program Pengabdian Kepada Masyarakat Skim Mono Tahun (IbM) Dosen Muda (Batch I), Nomor: 107/UN5. 2.3.2.1/PPM/2018, tanggal 26 Maret 2018).

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