

# The Quality of Chips Made from Basil Leaves

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**Abstract**—Chips made from basil leaves material may add to the diversity types of chips that already exist in the market. The objectives of this research is to determine the quality of chips made from basil leaves from several aspects such as color, flavor, aroma and texture, to find a good composition, precise and to determine the expiration period of chips made from basil leaves. In this research, type of data used is quantitative data in which the researcher conducted experiments in making chips from basil leaves and the data obtained through questionnaire in which the data were taken from 30 panelists. Qualitative data is used to determine the expiration period of the product. Based on the results of the total score, utilization of chips made from basil leaves has a value seen from several aspects such as color, flavor, aroma and texture, with total score of 474. Chips made from basil leaves can only survive for five days in proper storage. The conclusion of this research is to develop an experiment of chips made from basil leaves with good quality in terms of color, aroma, flavor and texture is suggested to use the composition of good and precise ingredients.

*Keywords*—Basil leave, quality of chips

## I. INTRODUCTION

### A. Background

Basil leaf (*ocimum basilicum*) is native tropical plant, Johan (1990). This plant is one of the horticultural crops, although it has a simple value in the community, for example just as a complement and food flavoring, obviously basil leaves have lot of functions, especially in health, Winaratam (2001). Indonesian people commonly use traditional medicines to treat diseases, basil leaf is expected to add people reference on medicinal plants in general. Basil leaves, besides as herbal treatment, also useful as vegetable pesticide, beverage ingredients and producer of essential oil by means eaten as fresh vegetable. Basil leaves also contain nutritional components such as *flavonoids*, *arginine*, *boron* and *essential oil*. *Flavonoids* as an antioxidant that can neutralize free radicals, anetol cholesterol plays major role in maintaining health, Johan (1990). Essential oil is divided into two components, they are: the hydrocarbon component and the oxygenated hydrocarbon component, Johan (1990).

Small plant with leaves that can be eaten as fresh vegetable, aroma of the leaves is typical and strong but soft with a touch of lemon scent. Basil leaf is one of food complementary spices. The distinctive aroma comes from the high *citrate* content of the leaves and flowers. In Thailand, known as *manglak* and often found in the local cuisine menu. Basil leaf is an annual plant that grows upright with many branches, smells like cloves and bitter taste. With lot of content of basil leaves, we will get especially to keep our body stay healthy. In general, the utilization of basil leaves is not maximized, because in Indonesia only focused for consumption in the form of fresh vegetable (*lalapan*).

Utilization of this simple basil leaves causing the sale value of basil leaf is less. Therefore, the utilization of processed basil products is needed verified to be able to increase the sale value and make more durable and longer storage life. Basil leaves have good potential to be made as simple processed food, because basil leaf has a lot of potential thus, it is potentially if increased the productivity so people will pay more attention to their health. One of the utilization of basil leaves that can increase the selling point is by making chips.

Chips are kind of snack made from tubers, fruits or vegetables and fried in vegetable oil. To produce a tasty and crunchy flavor is usually mixed with flour dough that is given a certain spices. Generally, the chips are made through the frying step, but only by drying, Kartika (2009). Chips can taste dominant salty, spicy, sweet, sour, savory, or blend of all.

Based on this understanding, it can be concluded that the chips are a snack, crunchy food derived from processed products of agricultural products and resistant stored for a long time. The important thing in making chips is the selection of quality raw materials thus the results obtained will be good. Besides basil leaves will be more durable, also can provide added value for the producers of chips itself, for consumers who consuming chips made from basil leaves will be more interesting because it is practical to be consumed.

The product of chips made from basil leaves has wide market potential, thus it needs to be planned the right business feasibility concept. The concept of marketing is an activity that contains and assesses and selects one or more market segments to be entered by the company. The product of chips made from basil leaves will also have potential benefits such as maintaining the environment and caring for the health of the consumers thus the results obtained will be good. Based on the benefits and potentials made by basil leaves, the writer conducting research on the quality of chips made from basil leaves.

### **B. Research Problem**

Based on the background above, there is a problem formulated:

1. How does the quality of chips made from basil leaves in terms of color, flavor, aroma, texture and its expiration period?

### **C. Benefit of the research**

Academic benefits of this research to the reader, both the students and public can determine the quality of chips made from basil leaves. Community could cultivate basil leaf as food commodities and it can be used as a reference for the next research.

## **II. LITERATURE REVIEW**

### **A. Previous Study**

There are two related research supporting this research. First, was written by Sriyono (2012) entitle "Pembuatan Keripik Umbi Talas (*colocasia giganteum*) Dengan Variabel Lama Penggorengan Menggunakan Alat *Vacuum Fryer*". Second research was written by Risdianika (2012) entitle "Pengaruh Kadar Air Terhadap Tekstur Dan Warna Keripik Pisang Kepok (*musa parasidiaca formatypica*)". Both researches have similarities in terms of the focus of the experiment about chips. The difference is on the use of different material in making chips.

### **B. An Overview of Basil Leaf**

Basil leaf is one of the vegetable which is popular with everyone. Also a vegetable high enough nutrient content then the freshness and at least the physical and biological changes are needed in the processing. Therefore, processing with increasing of water activity becomes very important and strategic to be implemented. Basil is a plant that grows up when the rainy season begins. This plant has a small tree resembling grass. Its body is wrapped by a fine feather that is safe to touch. In basil flower, there are seeds that are widely used by the community as a substitute for basil seeds. Basil plant leaves have a distinctive flavor and aroma. The flavor and aroma then make this leaf widely used as a fresh vegetable (*lalapan*). The scent or aroma of the leaves is distinctive, strong but soft with a touch of lemon scent. Basil plant is in form of bushes, seasonal with the height of 30 to 150 cm. While the trunk has woody features, rectangular, has grooves and feathers and green branches. Its leaves have a single characteristic, pointed tip, serrated edge, pinnate with a width of 3-6 mm.

Basil plant populations are widespread throughout the world in tropical climates, such as in Europe, the Mediterranean, Asia Pacific, South and North America, the Middle East and Australia. This plant is suitable to live in the fertile, loose and sufficient water available. However, this plant is also able to live on less fertile ground. Basil plant also found to grow wild in moor, garden and even impregnated waste disposal that have experienced complete weathering. Basil plant is often found in the lowlands to a height of 1100 m above sea level. This plant can grow on soil that has a pH between 5-7, on acid soil conditions basil can also grow well, and likes an open place and get sunlight. However, it can also live in a place that is sheltered or lack of sunlight, Manalu (1990).

### III. METHODS

#### A. Research location

The location of this research is in the kitchen laboratory of The Bali International Institute of Tourism located at Kecak Street, East Gatot Subroto 12, Denpasar, Bali.

#### B. Research Approach

On research approach on making chips from basil leaves will be described in chart 3.1 as follows:

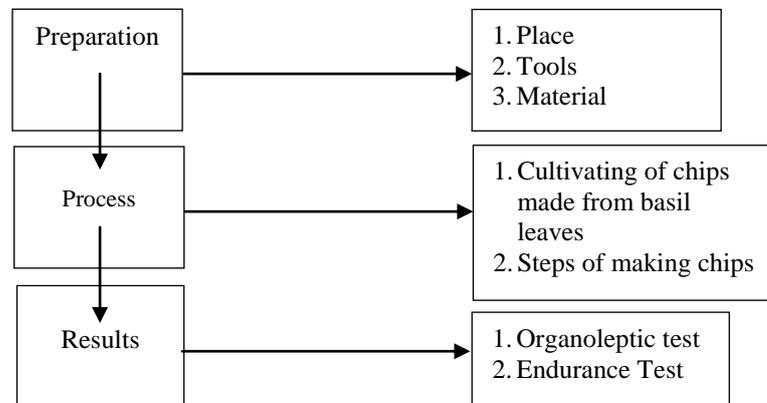


Chart 1. Research Approach

#### C. Process of making chips from basil leaves

In the process of making and cultivating chips made from basil leaves are:

1. Basil leaves are selected which are have good quality (fresh).
2. Then, it washed to remove dirt and dust.
3. Mixing of this stage is done by mixing the spices and flour that have been mixed with boiled water and produce dough for making chips from basil leaves.
4. Then the basil leaves were mixed with the dough and then put slowly into the pan then drained it.

### IV. RESULT AND DISCUSSION

#### A. Organoleptic test

Organoleptic test is a method used to test the quality of a material or product using the five senses of human. Thus, in this aspect can be tested through the color, taste/ flavor, aroma and texture. According to Wahyuni (1990) the result will be obtained from making these chips using organoleptic analysis by 30 panelists.

#### B. Endurance test

Endurance test is to provide a grace period to anticipate the occurrence of damage or deterioration of quality that occurs faster than normal condition. According to Winaratram (2001) it was done by observing to determine the quality of chips by calculating the preservation process that will be applied to chips product.

#### C. Data types

##### 1. Quantitative data

That is doing experiment on the manufacture of chips made from basil leaves. Data obtained through questionnaires where taken by 30 panelists who will assess the quality of the chips.

##### 2. Qualitative Data

That is the researcher do endurance test to determine the expiration period on chips made from basil leaves.

#### D. Data Source

Data source that used is primary data that will be obtained directly from the experiment collected by researcher directly from the source recorded, observed and then processed to answer the problem in the study.

#### E. Techniques of analyzing the data

1. Descriptive qualitative is to determine the durability of the product.
2. Descriptive analysis techniques based on organoleptic (color, flavor, aroma and texture).

The data obtained directly analyzed by Quantitative Descriptive Analysis Technique which is obtained from the result of research by 30 panelists to the product. The object studied with numbers that can be arranged with value intervals on each organoleptic (color, flavor, aroma and texture).

#### F. Results

This research was conducted to utilize basil leaves as the basic ingredient of making chips. The observed result is the quality of chips made from basil leaves which is seen from the aspect of color, flavor, aroma and texture.

The experimental results then were tested by 30 panelists to assess the quality of organoleptic test (color, flavor, aroma and texture). On the quality of chips made from basil leaves as basic ingredient, 30 panelists who provide the assessment are the people who are experts in culinary at The Bali International Institute of Tourism.

To calculate the total score on the chips with basil leaves as base ingredient, the maximum and minimum scores for the chips made from basil leaves should be determined. Maximum score is  $5 \times 30 = 150$  (5 = highest answer score and 30 = panelists). Furthermore the minimum score is  $1 \times 30 = 30$  (1 = lowest answer score and 30 = number of panelists). And to determine the length of the interval is as follows:

$$\begin{aligned} \text{determine the length of the interval} &= \frac{\text{maximum score} - \text{minimum score}}{\text{Number of classes}} \\ &= \frac{150 - 30}{5} \\ &= 24 \end{aligned}$$

TABLE 1. INTERVAL VALUE OF ORGANOLEPTIC TEST ON THE QUALITY OF CHIPS MADE FROM BASIL LEAVES

Interval value	Color Criteria	Flavor Criteria	Aroma Criteria	Texture Criteria
126-150	Very interesting	Very tasty	Very savory	Very crispy
102-125	Interesting	Tasty	Savory	Crispy
78-101	Quite interesting	Quite tasty	Bit savory	Quite crispy
54-77	Less interesting	Less tasty	Less pleasant	Less crunchy
30-53	Not interesting	Bad	Unpleasant	Not crunchy

Source: Data from the Interval Value of Organoleptic Test (2017)

Furthermore, based on the endurance test to determine the expiration period on the product in terms of the quality of chips made from basil leaves need to be tested, this test can also simultaneously determine the proper storage period before the quality decreases. The method used to test the durability of the chips made from basil leaves is by storing it in room temperature and the results of this observation obtained as follows, Table 2:

**TABLE 2. DURABILITY TEST METHOD (EXPIRATION PERIOD) CHIPS MADE FROM BASIL LEAVES AT ROOM TEMPERATURE**

Product observation	Days in-					
	1	2	3	4	5	6
Texture	Crispy	Crispy	Crispy	Quite crispy	mushy	mushy
Appearance	Good	Good	Good	Good	Good	pretty good
Aroma	Good	Good	Good	Good	Good	musty

Source: Data from the questionnaire (2017)

Based on table 2, if reviewed based on endurance test or expiration period on chips products made from basil leaves: after the chips are stored on a jar or packed using plastic on the first to the third day, texture, appearance and aroma of the chips made from basil leaves from the observations still look good.

Then, on the fourth day until the sixth day of the observation on the texture of the chips products have started mushy, if viewed from the appearance side of the observation of chips products still look pretty good, then in terms of the smell of the product observation has musty odor, thus based on the endurance test on the chips made from basil leaves can be concluded that the product can only last survive for five days in proper storage.

For the following organoleptic test in Table 4.3 assessed by 30 panelists who have skill in culinary, as follows:

**TABLE 3. RECAP DATA RESULTED FROM ORGANOLEPTIC TEST OF CHIPS MADE FROM BASIL LEAVES**

No	Indicator	Score					Total Score	criteria
		5	4	3	2	1		
1	Color	8	13	7	1	1	116	Interesting
2	Flavor	17	11	2	0	0	135	Very tasty
3	Aroma	8	10	11	1	0	115	Very savory
4	Texture	8	17	1	3	1	118	Crispy

Source: Data from the questionnaire (2017)

Based on Table 4.3, it can be seen that the result of organoleptic test of quality of chips made from basil leaves had assessed by 30 panelists on color indicator with a total score of 116 with the criteria of interesting, for the flavor indicator, the value of organoleptic test interval with total score of 135 is in the criteria of very tasty, For the aroma indicator, the value of the organoleptic test interval with total score of 115 is in the criteria of very flavorful typical chips made from basil leaves and for the texture indicator, the value of the organoleptic test interval with total score of 118 is in the criteria of crunchy.

## V. CONCLUSION

Based on the result, the quality of chips made from basil leaves from the quality of color have interesting color criteria, from the quality of flavor have very tasty criteria, in terms of aroma quality have scented criteria typical of chips made from basil leaves and from the texture quality have crunchy texture criteria. Meanwhile, the endurance or the expiration period test on chips products made from basil leaves is after the chips are stored on a jar or packed using plastic on the first to third day, the texture appearance and aroma of the chips made from basil leaves from the observation still looks good. Therefore, based on the endurance test of the chips made from basil leaves can be concluded that the product can only survive for four days in proper storage.

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