

The development of new products of pineapple cheesecakes

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Abstract

In view of the product - pineapple cheesecakes newly developed for this study, the questionnaire answers proposed by consumers after sensory evaluations find the most popular flavor with 27% recipe proportion of pineapple chops added. Furthermore, after pineapples are added into cheesecakes, a new flavor has emerged in cheesecakes yet reduces the oily taste without sacrificing its original flavor and nutrient value. In the experiment of formal sensory evaluation, genders, ages, occupations, incomes and purchase intention are served as factors to analyze consumers' preference to pineapple cheesecakes. Research results after investigation finds the strongest acceptability is the samples of pineapple cheesecakes added with 27% pineapple chops. The least acceptability happens to the samples of pineapple cheesecakes added with 27% pineapple jams. After analysis, it is found the overall acceptability is high but the purchase intention is low revealing a higher preference to cheesecakes added with pineapple chops.

Keywords: Pineapple, Cheesecakes, Sensory evaluations..

1. Introduction

Nowadays, because people prefer to chase after innovative and novel products. Currently, there are few products of pineapple cheesecakes available on the markets. Because Kuanmiao, a town in southern Taiwan, is rich in pineapples with its agricultural yields of famous Diamond Pineapples (Tainon Number 17) throughout the year. Compared with the pineapples originated from tropical regions, our pineapples raised in the subtropical hilly regions are merited with the appropriate proportion of sweetness against acidity due to the remarkable temperature differences between days and nights in summer. Our pineapples combined with highly distinctive sweetness and acidity can intertexture a stunning flavor in mouths [1].

The science of Chinese Medicine proposes pineapples are featured with sweet yet sour flavors. It can stop thirst and facilitate digestion after eating with its major healing effect of deficient stomach secretion, frequent thirst, indigestion, appetite loss and diarrhea [2]. Because pineapples are featured with aforesaid effect, affordable prices and easy availability, this study focuses on the raw material of pineapples to develop new products and also takes people's purchase intention into consideration. The pineapples are further combined with the cheesecakes with a higher preference to explore consumers' preference for this kind of product.

2. The Review of Scientific Literatures

Pineapples (*Ananas comosus*) are a kind of evergreen perennial trees with its English name of the pineapple and the Chinese aliases like Buoluo and Huangli.

The Nutrients of Pineapples :

In view of the nutrients of pineapples, the pulps of pineapples are abundant in nutrients. Every 100g of pineapple pulp contain 52 calories, 87g of water, 0.9g of protein, 0.2g of fat, 11.6g of carbohydrate, 1.4g of fibers and 0.3g of ash [3].

Pineapple pulps containable bromelain with the effect like those of papain or pepsin available to decompose protein and facilitate digestion. Fruits contain a large volume of sugars (such as glucose, fructose, sucrose) and organic acids (Most ingredients are citric and others like malic acid and tartaric acid, etc.) available to eliminate fatigue. There are also some inorganic components such as iron, magnesium, potassium, sodium, calcium, phosphorus. Furthermore, pineapple fruits can also exert the effect of relieving heat, diureses, detoxification and stopping thirst [3] [4].

3. Research Method & Goal

(1) The Design of Questionnaires

Questionnaire design can be divided into two major parts. In previously prepared experimental products, the Control Group - Product B is added with pineapple chops and pineapple jams and divided into 3 different kinds of food stuffs for scoring evaluation analysis. Among them, 2 kinds of cheesecake recipes containing pineapple chops and pineapple jams with higher popularity are further analyzed available for formal sensory evaluation.

(2) Formal Sensory Evaluation:

This study continues referring to the recipe results adopted from commercial cooking books and sets Recipe A as a control group. Thereafter, two better flavors of the Group C with pineapple chops and the Group D with pineapple jams after screened from experimental preparation are further added with the recipes of the Control Group and the Group B with pineapple juice for 7-point scoring evaluation. Also, every asking item is clearly described convenient for

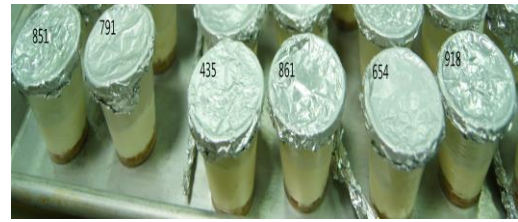


Fig. 1. Pineapple cheesecakes are combined with different content proportions for experimental tests.

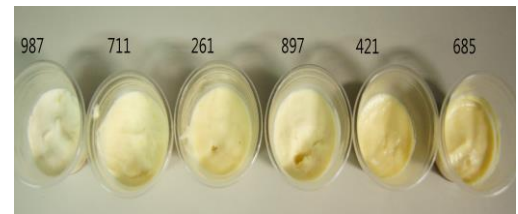


Fig. 2. Illustrates the finished products of pineapple cheesecakes made from different content proportions prepared for formal tests.

respondents to answer. In the 7-point scoring evaluation, 7 points mean the strongest flavor or preference and 1 point means the weakest flavor or preference. In view of the tests of sensory evaluation, "1" means "dislike very much"; "4" means "accept reluctantly"; "7" means "like very much". Meanwhile, to understand if the basic information of respondents will affect their own preference and acceptability to pineapple cheesecakes.

4. Production & Analysis

(1) Evaluation Method

The Methods for Experimental Preparation:

By referring to the cheesecake recipes adopted from commercial cooking books, a group of food stuffs combined with Recipe A and B is viewed as the control group and further improved as the group C and D with two best recipes selected. Cream cheese, whipped cream, gelatin powder, sugar, yogurt and lemon juice are served as raw materials with 3 different mixture proportions of Recipe C and D ready for formal sensory scoring evaluation few days later. The experiment is randomly conducted on 15 people passing through new urban regions for blind sensory evaluation.

Blind Test: Every sampling doze weighs 25g. During tests, respondents are not aware of food contents and pineapple weight. Figure 1 illustrates the finished

products of pineapple cheesecakes combined with different content proportions for experimental tests.

Formal Sensory Evaluation: The sampling recipes for formal sensory evaluation are exactly the same as those previously prepared for experiments, but new random codes are marked. Figure 2 illustrates the finished products of pineapple cheesecakes made from different content proportions prepared for formal tests.

(2) The Analysis of Demographic Variables of Formal Sensory Evaluation

Experimental respondents are those consumers on new urban regions with the frequency analysis focusing on their genders, ages, occupations, incomes and purchase intention .

In gender survey, there are 62 females occupying 59.6% and 42 males occupying 40.4%. In age survey, the ages of respondents include 32 respondents aging below 20 (inclusive) occupying 30.8%, 30 respondents aging 21~25 (inclusive) occupying 28.8%. About income survey, there are 48 respondents with incomes below 20,000 NTDs (inclusive) occupying 46.2%, 31 respondents earning 20,001~30,000 NTDs occupying 29.8%. In occupation, there are 20 respondents with their occupations separately in academic, agricultural and industrial fields occupying 19.2%, 21 respondents in the commercial field occupying 20.2%, 43 students occupying 41.3% and 20 unemployed or retired respondents occupying 19.2%. About purchase intention : In this survey, there are 84 respondents with purchase intention occupying 80.8%.

The Variance Analysis of purchase intention : This study is operated with the Independent Sample T-test to explore and analyze if there is any remarkable difference happening to purchase intention against different recipe proportions added to pineapple cheesecakes. Results are shown as Table 1. It is found there is no remarkable difference happening to the purchase intention from those of different occupations. Among them, no matter if there is any purchase intention, respondents show highly similar degrees in acceptability.

However, respondents show stronger purchase intention to sample 711 and 897 wherein sample 897 receives stronger preference. It means consumers feel more enjoyable in chewing acceptability. Some consumers

show higher preference to cheesecakes without any additive fruit granule.

Table 1 reveals the ANOVA variance analysis of pineapple cheesecakes with different recipe proportions felt by those of different occupations

| Question Item | Purchase Intention | Count | Average | S.D. | F-test | Significance |
|---------------------------|--------------------|-------|---------|-------|--------|--------------|
| 987 Overall Acceptability | Yes | 84 | 4.70 | 1.487 | 1.213 | .273 |
| | No | 20 | 4.80 | 1.704 | | |
| 711 Overall Acceptability | Yes | 84 | 4.87 | 1.412 | 2.305 | .132 |
| | No | 20 | 5.20 | 1.105 | | |
| 261 Overall Acceptability | Yes | 84 | 4.71 | 1.393 | .002 | .965 |
| | No | 20 | 5.30 | 1.302 | | |
| 897 Overall Acceptability | Yes | 84 | 5.02 | 1.388 | .671 | .415 |
| | No | 20 | 5.55 | 1.191 | | |
| 421 Overall Acceptability | Yes | 84 | 4.64 | 1.580 | .753 | .387 |
| | No | 20 | 4.90 | 1.373 | | |
| 685 Overall Acceptability | Yes | 84 | 4.56 | 1.524 | 1.435 | .234 |
| | No | 20 | 5.15 | 1.226 | | |

5. Conclusion & Prospect

In view of the product - pineapple cheesecakes newly developed for this study, the questionnaire answers proposed by consumers after sensory evaluations find the most popular flavor with 27% recipe proportion of pineapple chops added. Furthermore, after pineapples are added into cheesecakes, a new flavor has emerged in cheesecakes yet reduces the oily taste without sacrificing its original flavor and nutrient value.

In the experiment of formal sensory evaluation, genders, ages, occupations, incomes and purchase intention are served as factors to analyze consumers' preference to pineapple cheesecakes. Research results after investigation finds the strongest acceptability is the samples of pineapple cheesecakes added with 27% pineapple chops. The least acceptability happens to the samples of pineapple cheesecakes added with 27% pineapple jams. After analysis, it is found the overall acceptability is high but the purchase intention is low revealing a higher preference to cheesecakes added with pineapple chops.

We assume not everyone like the product of pineapple cheesecakes. However, in view of overall flavors, the product is acceptable but no purchase intention shows. Also, respondents show no remarkable feeling to the

acidity of pineapple cheesecakes proposed in this study. Furthermore, the sweetness after sugaring making the acidity of pineapple vaguer also affects respondents' preference to samples with research results influenced. Because of the limitation of research fund, it is hoped in the future, the vague acidity of pineapple cheesecakes after the sugaring of pineapple chops and jams can be improved. Additionally, purchase intention can be further investigated to continuously find out the product of pineapple cheesecakes with the best preference from consumers to improve product diversities.

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