7th International Science, Social Sciences, Engineering and Energy Conference
24-26 November, 2015, Wangchan Riverview Hotel, Phitsanulok, Thailand

I-SEEC 2015

http//iseec2015.psru.ac.th

The Type and Quantity of Herbs on Sensory Evaluation of Shredded Rice Grain

Namthip Wongpratheep[a,e1], Songpus Sangkasub[a,e2]

[a]Food and Agriculture Technology Pibulsongkram Rajabhat University, Thailand

[e1]wnamthip@yahoo.com , [e2]songkasub@yahoo.com

Abstract

The objective of this research was to study optimization of type and quantity of herbs into shredded rice grain. Five fried herbs, i.e., basil, kaffir lime leaves, finger root, ginger and coriander leaves were studied. Four levels of each type (0, 6, 9 and 12 percentage of total solid). The sensory qualities of the product in the overall appearance, color, odor, taste, texture and overall liking were determined using a 9-point hedonic scale. The chemical composition of the optimized product was analyzed. The results show that optimization of type and quantity of herb of shredded rice grain was to add coriander leaves 9%. This product consisted of 20.92% protein, 22.38% lipid, 3.1% ash, 3.41% fiber and 50.19% carbohydrate of dry weight.

Keywords: rice, shredded rice grain, herbs, sensory

1. Introduction

Flake means Rice milk over a period of 5-7 days. Rice seeds are full but not yet ripe. Rice, residents in the northeast is called "drunk". Time has traditionally favors people use this term rice processed into "Mao". To keep the grains to make the some to pick individual grains. Then pull out the grain and then roasted. Then it was pounded with mortars. Locals commonly known that. "Mortars looking". To shell out the rice grain still soft at this stage. A pounded was on the some with green flat beans. (Vichen and Chaichan, 1999). Shredded rice grain have both sticky-rice, rice and back rice. The most popular are sticky-rice. The sticky-rice have characteristic aroma and green nature of the grain. It is a popular and acceptable to consumers. Then, the processing of fresh products from the sticky-rice to do the kinds Shredded rice grain (KWOA-MAO-MI), Krayasart and reckless (BABIN).

Shredded rice grain products is mixed with sugar, peanuts, dried shrimp, roasted garlic,yellow tofu, cut into small pieces and fry them crispy (Rice Research Institute, 2002). Shredded rice grain products as a nutritious snack that many either, etc, carbohydrates from whole grains, protein from meat is dried and the plant is tofu and peanuts. Shredded rice grain products is a benefit was first made shredded rice grain products jar. A small cup children chew guard hungry lap (PalaSri, 2002).

Development of rice, Thailand should improve the format of traditional grain products to advanced manufacturing processes. Convenient for consumers and a longer shelf life. Rice is ideal to use as a health food. It is nutritious, easy to digest, low in sodium and have no cholesterol does not cause allergies (Onanong, 2001).

2. Method

1. Development of Herbal shredded rice grain products by using a method of producing a modified method of Rice Research Institute (2542) Then studied species of herbs that fill the shredded rice grain master recipe. On the acceptance of consumers using herbal five kinds of basil, kaffir lime leaves, ginger, coriander and ginger. The herbs used are used in the form of shredded, then dried and shredded and then fried. Then, the product was tested for sensory acceptance of consumers. The evaluation criteria for the acceptance of appearance, color, taste, texture and overall liking how the 9-point Hedonic Scale score of 9 represents the most liked and did not like the score of one means the most. Use the test and analyzing the results of 30 semi-trained sensory way Randomized Completely Block Design (RCBD) then put the result to the next step.

2. The development of medicinal shredded rice grain products by using a method of producing a modified method of Rice Research Institute (1999), then studied the amount of herbs that fill the shredded rice grain master recipe. On the sensory of consumers by the addition of herbs 4 levels of 0, 6, 9 and 12 of the total weight of the solid ingredients. Then, the product was tested for sensory acceptance of consumers. The evaluation criteria for the acceptance of appearance, color, taste, texture and overall liking how the 9-point Hedonic Scale score of 9 represents the most liked and did not like the score of one means the most. Use the test and analyzing the results of 30 semi-trained sensory way Randomized Completely Block Design (RCBD).

3. The data was analyzed statistically. The statistics used in the experimental design was completely randomized design (CRD) and conducted three over. Use to ANOVA (Analysis of variance) from the comparison with the analysis of different statistical Duncan's new multiple range test analyzed. The sensory with Randomized Completely Block Design (RCBD) (Zar, 1984).

3. Results and Discussion

Table 1 Sensory evaluation of herbs shredded rice grain at 6% concentration of 5 herbs

Sensory Testing	Type of herbs				
	basil	kaffir lime leaves	finger root	ginger	coriander leaves
appearance	6.89±0.77^{b}	6.73±0.72^{b}	5.60±0.76^{c}	5.54±0.52^{c}	7.50±0.43^{a}
colour	6.76±0.42^{b}	6.65±0.52^{b}	5.23±0.63^{c}	5.36±0.29^{c}	7.15±0.56^{a}
order	6.25±0.67^{b}	6.31±0.77^{b}	5.01±0.31^{c}	4.98±0.64^{c}	7.27±0.51^{a}
taste	6.31±0.64^{b}	6.09±0.75^{b}	5.11±0.12^{c}	5.03±0.35^{c}	7.12±0.36^{a}
texture-crispiness^{ns}	7.32±0.61	7.36±0.44	7.31±0.45	7.43±0.36	7.44±0.76
overall liking	6.68±0.92^{b}	6.72±0.89^{b}	5.12±0.23^{c}	5.31±0.47^{c}	7.35±0.66^{a}

$^{abc...}$ *Means in the row with different superscripts were significantly different (P≤0.05)*
^{ns} *Means in the row were not significantly different (P>0.05)*

The sensory evaluation of herbs shredded rice grain was shown in Table 1. The shredded rice grain was mixed with basil, kaffir lime leaves, finger root, ginger and coriander leaves at 6% of dry weight. All 5 formulas of herbs shredded rice grain were sensory tested by 30 trained panelist using the 9-

points Hedonic scale (Score: 1 = dislike extremely, 9 = like extremely). Attributes of crispy rice tested were appearance, color, odor, taste, texture-crispiness and overall liking. The results of sensory evaluation test were shown in Table 1. The panelists were acceptable in coriander leaves more than other herbs ($P \leq 0.05$). The shredded rice grain mixed with coriander was presented good color and good odor. The shredded rice grain mixed with basil and ginger was presented strong odor. The shredded rice grain mixed with kaffir lime leave, finger root and basil was presented hot and spicy. The higher score was depended on good appearance odor. The overall liking scores of 5 formulas of herbs shredded rice grain were significantly different ($P \leq 0.05$).

Table 2 Sensory evaluation of herbs shredded rice grain at 0-12% concentration of coriander leave.

Attribute	Concentration (%)			
	0	6	9	12
appearance	5.50 ± 1.24^{b}	6.87 ± 1.32^{ab}	7.87 ± 0.53^{a}	7.60 ± 1.02^{ab}
color	5.22 ± 0.27^{c}	6.01 ± 0.31^{b}	7.42 ± 0.41^{a}	6.18 ± 0.86^{b}
order	5.22 ± 0.43^{b}	6.80 ± 0.56^{a}	7.02 ± 0.35^{a}	6.76 ± 0.66^{a}
taste	5.31 ± 0.32^{b}	7.21 ± 0.63^{a}	7.44 ± 0.69^{a}	7.38 ± 0.73^{a}
texture-crispiness^{ns}	7.12 ± 0.61	7.20 ± 0.62	7.14 ± 0.58	7.18 ± 0.73
overall liking	5.57 ± 0.37^{b}	7.41 ± 0.81^{a}	7.88 ± 0.49^{a}	7.61 ± 0.37^{a}

$^{abc....}$ *Means in the row with different superscripts were significantly different ($P \leq 0.05$)*
^{ns} *Means in the row were not significantly different ($P > 0.05$)*

Sensory evaluation of herbs shredded rice grain at 0-12% concentration of coriander leave was shown in Table 2. These results shown the significantly different ($P \leq 0.05$) between added (6-12%) and not added (0%) coriander leave in the shredded rice grain. Despite, the suitable addition of coriander leave was 9% of total solids. This concentration was highest score from the consumer. Due to the 9% of coriander leave was not less or too much and made appetizing appearance.

Table 3. Nutrition value of herbs shredded rice grain at 9% concentration of coriander leave

Compositions	Amount (% dry basis)
Moisture	9.37 ± 0.61
Protein	20.92 ± 1.76
Fat	22.38 ± 0.64
Fiber	3.41 ± 0.43
Ash	3.10 ± 0.32
Carbohydrate	50.19 ± 1.25
Sugar	3.11 ± 0.42
Sodium	0.93 ± 0.09

The results for the chemical composition of the shredded rice grain added with 9% of coriander leaves were showed in Table 3. This research found that the main nutritional compositions were carbohydrates, fat and protein. The amount of main nutritional compositions was 50.19, 22.38 and 20.92, respectively. This due mainly to the main ingredient of shredded rice grain was rice which frying process. Moreover, shredded rice grain was added other ingredients that contain protein.

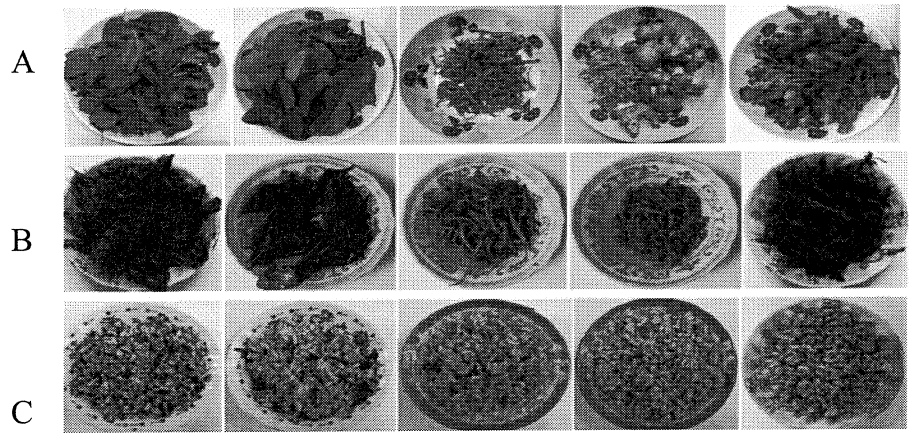

Figure 1. The appearance of 5 herbs before (A) and after (B) baked in oven and mixed (C) with shredded rice grain

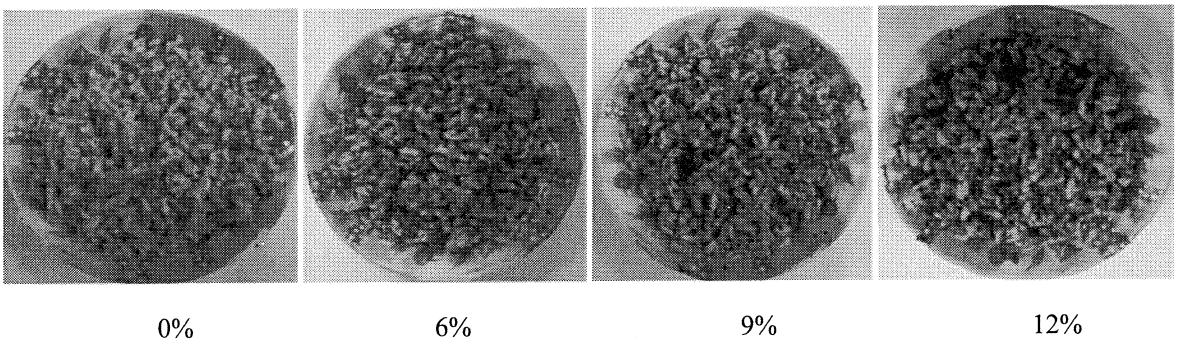

Figure 2. The appearance of shredded rice grain mixed with coriander leaves at difference concentration

4. Conclusion

This study illustrated that the consumers were acceptance in the product development of shredded rice grain. The suitable formula was 9% of coriander leaves mixed with shredded rice grain (the total weight of the solid ingredients). The nutrition value of herbs shredded rice grain at 9% concentration of coriander leave consist of 20.92% of protein, 3.1% of fat, 3.41% of fiber, 42.38% of ash and 30.19% of carbohydrate of dry weight.

Acknowledgement

The authors gratefully acknowledge funding from Pibulsongkram Rajabhat University, Phitsanulok, Thailand.

References

Department of rice. (2014). Cognitive news story. (Online). Www.brrd.in.th/rkb/index.phd.thm, (30 January, 2014).

Chiang Mai News. (2014). Flake. (Online). Http://www.chiangmainews.co.th/read.phd?id=1034, (January 2014).

Parisud Songthip, Kamolwon Jangchad, and Prisan Wutjomnong. (2007). Study reasonable proportion of the sweetener in the production of rice and herbs snack bar. The full meeting of the Technical University at 45: Agricultural Extension. and Home Economics Agro-Industry. Bangkok, 547-553.

Phanit Rugirapisit, Wichuda Sungkawe, and Saowanee Awesagunrat . (2012). The nutritional value of rice, nine species. The. Sci. MOAC. 43 (2): 173-176.

Ratana Prompichai. (1999). Rice Crackers. In Northern Thailand Cultural Encyclopedia (Vol. 2, p. 812). BANGKOK: Thailand Cultural Foundation Encyclopedia. Commercial Bank of Thailand.

Onanong Naivikul. (2004). Rice: Science and Technology. Bangkok: Kasetsart University Press.AOAC. (2000). Official methods of analysis of AOAC international. 17th ed. Association of Official Analytical Chemists. Gaithersburg. Md.

Zar JH. (1984). Biostatistical analysis. 2nd edn. Englewood Cliffs: Simon & Sohuster .