

Banana Peel Cereal


Nur Afifah Md Daud¹, Nuraliaa Syahirra Mohd Zawawi², Siti Madiha Samsul Bahari³, Nur Anis Hamdan⁴, Norazlina Rahmat⁵, Mushaireen Musa⁶ and Khazainah Khalid⁷

¹ UiTM Cawangan Terengganu; 2021113149@student.uitm.edu.my

² UiTM Cawangan Terengganu; 2021340685@student.uitm.edu.my

³ UiTM Cawangan Terengganu; 2021103361@student.uitm.edu.my

⁴ UiTM Cawangan Terengganu; 2021120377@student.uitm.edu.my

⁵ UiTM Cawangan Terengganu; noraz335@uitm.edu.my ;  ORCID ID 0000-0002-6295-899X

⁶ UiTM Cawangan Terengganu; musha268@uitm.edu.my

⁷ UiTM Cawangan Terengganu; khaza088@uitm.edu.my

* Correspondence: khaza088@uitm.edu.my; 60173900724.

Abstract: *Banana Peel Cereal is made from treated banana skin making it a different innovation cereal compared to existing cereal in the market. The objectives of this innovative product are to diversify and enrich the use of waste materials; banana peel in the manufacture of cereal. Another purpose was to introduce a new flavor and taste in cereal products besides producing a nutritious product that is high in nutrient values. Other ingredients include cornmeal (polenta flour), essence, and honey. The process of making Banana Peel Cereal starts with scraping and straining the banana peel before they were baked and ground to form a powder. Then, all the ingredients are weighed and mixed accurately. The batter was baked at desired temperature and time before being shaped properly. Findings from an affective test (n = 60) with three different samples (V1-maple syrup, V2-honey, and V3-dates) using five different attributes, such as appearance, scent, crunchiness, flavor, and overall acceptance shows that the most preferred products are V2- honey with 43.3%. By incorporating local waste into cereal production, the marketing and commercialization of these novel Banana Peel Cereals can boost the value of local waste. It is manufactured to satisfy current demand because consumers may enjoy the same product as natural cereal anytime, anyplace since it is a ready-to-eat meal. This product is marketable, cost-effective, and simple to prepare, allowing for mass production.*

Keywords-banana peel cereal, innovations, preparation, products.



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1. INTRODUCTION

The Banana Peel Cereal is an innovation that originally made from banana peels and contains natural sweeteners including honey, maple syrup, and dates. In addition, the product is suitable for consumption by people of all ages, including kids and adults. As it is a ready-to-eat meal, it can be eaten on its own or accompanied by milk. The purpose of this innovation is to reduce banana peel waste by developing a product that can be promoted globally while also providing a few health benefits from banana peels. Banana peel phenolics have been connected to several health advantages and have been discovered to have strong antioxidant and antibacterial capabilities, recovering phenolics from this by product is therefore beneficial for use in the food and pharmaceutical industries (Vu et al., 2017). People nowadays tend to avoid eating meals like rice in their daily life in favour of eating more vegetables and fruits to avoid gaining weight and to maintain their body shape as well as avoiding obesity or any

chronic diseases. Fruits and vegetables keep body healthy while also adding variety, flavour, and texture to diets (FAO, 2021). Producing banana peel cereal may help consumers to maintain their bodies while also providing nutrients for the body.

2. METHOD & MATERIAL

2.1 Materials

Initially there are three variations that have been prepared for this innovation. The basic materials used to prepare Banana Peel Cereal are banana peels, salt, water, banana essence and cornmeal (polenta flour). Meanwhile this is the material that we added as variations:

Table 1. Materials for variation.

	Materials
Variation 1	Maple syrup
Variation 2	Honey
Variation 3	Dates

2.2 Methodology

2.2.1 Preparation of Banana Peels



1. The peels were cleaned properly.



2. Banana peels were dried using kitchen tissue.





3. All the peels were arranged on the tray and baked them at 98 °C for 50 minutes.



4. Then, grinded them by using grinder to get fine texture.

2.2.2 The Making of Banana Peel Cereal

1. Prepare all the ingredients such as banana peels that already in fine texture, polenta flour, water, salt, banana essence and the material used for variations which are maple syrup, honey, and date.



2. In a bowl, pour 250 gram polenta flour and 20 gram banana peels powder and two pinch of salt and mix them together.



3. Add 1 teaspoon banana essence and put 1 cup of water into the mixture.



4. For the variations 1, added 1 cup of maple syrup. Meanwhile, for variation 2 added 1 cup of honey, and for variation 3 added 1 cup of dates. Then make sure the mixture gets the consistency of pancake batter.



5. Lay the non-stick baking paper on the tray and spread the batter on baking paper thinly. Bake it at 150° C for 30 minutes.



6. Lastly, take out and cut it into pieces. Pack the cereal in the proper packaging.



2.2.3 Sensory Evaluation

Sensory evaluation is conducted in order to determine which variation is the best and preferable by the consumers. The evaluation was carried out by 60 panellists that include students from Universiti Teknologi MARA (UiTM) Cawangan Terengganu and local community. Each of them was served with three different variations of sweetener which is variation 1 (Banana Peel Cereal with maple syrup), variation 2 (Banana Peel Cereal with honey) and variation 3 (Banana Peel Cereal with dates). A 9-points of hedonic scale was used to evaluate all the samples where score 1 represents extremely dislike and score 9 represents extremely like. Then, the result was analysed by comparing the average score between the three variations.

3. FINDINGS

Based on the finding, it is proven that banana peel can be used as an ingredient in many foods such as cereal product.



Figure 1. Types of variation.

Below is the example of packaging.

Box width: 160mm

Box Height: 225mm

Box depth: 55mm

Net weight: 100g



Figure 2. Packaging specification.

4. DISCUSSION

An affective test (hedonic test) was conducted by 60 panellists by using Google Form comprising of five attributes which are colour, aroma, crunchiness, flavour, and overall product acceptance. Each of the panel was served with three different variations which is variation 1, Banana Peel Cereal with maple syrup, variation 2, Banana Peel Cereal with honey and variation 3, Banana Peel Cereal with dates syrup.

Table 2. Hedonic test results.

	Variation 1	Variation 2	Variation 3
Colour	6.07	7.00	5.83
Aroma	5.83	6.72	5.58
Crunchiness	6.93	7.72	6.62
Flavour	6.25	7.90	5.55
Overall product	6.83	7.77	5.98

According to the table above, the result showed that variation 2 got the highest score for the overall product acceptance, which is 7.77, followed by variation 1, 6.83 and variation 3, 5.98. Variation 2 has been chosen by the panels because the colour is more attractive compared to variation 1 and variation 3. The colour is more yellowish because of the bright and shining honey colour. Next, the banana peel itself evokes the existing banana aroma coupled with honey which has a sweet and appealing aroma. Honey also plays a role in the crunchiness of the cereal and its crunchiness can last longer when eaten with milk compared to other variations. For flavour, variation 2 showed that a combination of all ingredients' flavour is mostly acceptable and contribute to the unique flavour in comparison with existing cereals in the market.

5. CONCLUSION

The product is simple yet nutritious and it is a convenient and ready-to-eat meal which suitable for consumers of all kinds of ages. In addition, it also contains food waste as the main ingredient which is banana skin in the cereal. Adding a natural sweetener made it more palatable and suitable to be manufactured globally. By producing this product, waste amount of banana skin can be reduced and transformed into an edible product.

Acknowledgments: This project was compulsory for HTF525 subject (Principle of Food Science and Technology) which needed for the student to propose and produce innovative products during fourth semester. All ingredients, equipment and facilities are provided by Faculty to the students. Special thanks to the supervisors, Madam Khazainah Khalid, Madam Norazlina Rahmat and Mr. Mushaireen Musa for their support and knowledge as well as to our Faculty of Hotel and Tourism Management, UiTM Cawangan Terengganu.

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