
	Gema WIRALODRA
	Editor-in-Chief: Yudhi Mahmud
	 Publisher: Universitas Wiralodra

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To cite this article:

Fadilah, A. N. (2024). Evaluation of Costumer Attitudes: Attributes Product of Mango Peel Powder. *Gema Wiralodra*, 15(2), 738 – 746

To link to this article:

<https://gemawiralodra.unwir.ac.id/index.php/gemawiralodra/issue/view/25>

Published by:

Universitas Wiralodra
Jln. Ir. H. Juanda Km 3 Indramayu, West Java, Indonesia

Evaluation of Costumer Attitudes: Attributes Product of Mango Peel Powder

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Abstract

Indramayu is the number one mango fruit producing city in West Java Province. While there has been no handling and processing of home industrial waste. This can cause serious problems in the environment. There is a need for an economic and environmentally based waste management system. One of them solution is processing mango peel waste into GOPE (mango peel) powder, products as a natural food additive to replace essence powder products and synthetic powder for food and drinks. The purpose of this study is to analyze consumer attitudes towards the mango peel powder. Consumer attitude is an emotional expression of consumers that shows whether consumers like an object or not so that attitudes can describe the level of consumer confidence in products or services. Consumer attitudes on mango peel powder product attributes describe what priority attributes are taken into consideration in choosing product. This research is a quantitative descriptive using Fishbein's multi-attribute method. Fishbein's Multiattribute Model can measure consumer attitudes using three components: the level of importance, trust, and attitude evaluation. There are thirty who are consumers have consumed essence powder products in the last two months and selected using accidental sampling . The results of this study indicate that research respondents have a positive attitude towards five attributes of Taste, texture, form, composition, smell and one of them are netral about one attributes: colour.

Keywords: Attitudes, Fishbein's Multi-Attribute, Mango Peel Powder, Home Industry

1. Introduction

Indramayu is the number one mango fruit of producing city in West Java Province (Opendata, 2023). There are many mango processing businesses in Indramayu Regency. In 2021, there were 1,637,701 food umkm units and 30,3817 drink umkm units in Indramayu Regency (Opendata, 2023). The mango processing home industry consumes 1.5 quintals / 150 kg of mangoes every day into various of processed products.(Republika, 2016).

Table 1.

Weight Loss of 1 kg Mango Fruit

No	Mango	Weight
1	Flesh	½ kg
2	Peel	150gr
3	Peel Powder	150 gr

Source: primary data

Based on table 1, we can see that 1 kg of mango fruit will produce 150 grams of mango peel. which means that this 150kg mango fruit will produce 22,5 kg of mango peel. This will increase the amount of waste in the environment. Mango processing home industry only takes the flesh of the mango fruit, while the peel and seeds mango are waste. Mango peel contains the chemical compound pectin.

Pectin is a texture-strengthening polysaccharide in plant cells that is found between cellulose and hemicellulose. Pectin is used in the food industry because ability to form gel which is the basic ingredient for forming jelly and preserving fruit (Prasetyowati et all, 2009)

Pectin is considered safe for human consumption and is used in food and pharmaceutical products as a thickening and gelling agent (Angelin., 2019). Mango peel have pectin 0,35% (Muchtadi et al., 2014).

Pectin has many health benefits. Based on several studies, pectin is able to accelerate wound healing (Chansiripornchai et al., 2005) Pectin can suppress cancer growth (Rizki., et al 2015) Pectin has antioxidant power which binds free radicals and highly reactive molecules in the body so that it can prevent cell damage in the body (Abdel-Massih., et all 2016) Pectin can reduce blood glucose and cholesterol, Increased satiety leading to lower calorie intake, improving insulin resistance and reducing inflammation. Pectin can help in the prevention and treatment of type 2 diabetes (Angelin., 2019).

Industrialization accelerates growth, although on the other hand, the impact of industrialization must still be watched out for. One of the facts of this impact is the existence of industrial waste (Bottero et al., 2011). This development process then gave rise to a green revolution, including the emergence of demands for green products. products that are not only environmentally friendly but can also be recycled (Simpson., 2010).

Insufficient knowledge and skills and a lack of references for mango peel waste processing products for mango processing home industries have resulted in decreased awareness of environmental conservation, so that mango peels become waste. Industry players Insufficient information about consumer responses to mango peel powder products. Research is needed on consumer attitudes towards mango peel powder products.

This research hoped that leather powder products will become the product of choice that can improve the economy, increase product diversification and preserve a healthy environment with minimal waste. This supports the government program Presidential Regulation (Perpres) no. 22 of 2009 concerning Policy for the Acceleration of Diversification of Food Consumption Based on Local Resources. Through mango peel powder, food diversification of mango fruit commodities can be realized. Supporting the Ministry of Agriculture's 2010-2014 Strategic Plan program to minimize environmental damage and global climate change by utilizing mango peel waste into functional food powder with the concept of zero waste and recycling.

2. Method

This research is quantitative descriptive using Fishbein's multi-attribute method. Fishbein's Multiattribute Model can measure consumer attitudes using three components: the level of importance, trust, and attitude. There were thirty person and selected using accidental sampling. This research used purposive sampling with the following criteria: 1) the respondent was at least 17-25 years old; 2) the minimum education was high school or equivalent; 3) the respondent has consumed essence Taste powder powder powder or Taste sintetic for food and drink in the last one months. The type of data in this study was primary data obtained by distributing questionnaires. The questionnaire consisted of two parts, the first part contains profiles of respondents consisting of age, gender, education, profession and pendapatan. The second part contains consumer perceptions and beliefs about the competitive attributes of mango powder which according to similar research believed in attributes determine consumer attitudes in choosing products using a Likert scale 1-5. In this study, indicators of trust attitudes consisted of Taste, texture, form, smell, colour and composition from various previous studies : (Sumarwan., 2000) . The technique using Fishbein's multi-attribute method (Simamora., 2004).

$$A_o = \sum_{i=1} (b_i) (e_i)$$

A_o= Component is the consumer's attitude.

- bi = Component is the belief in the attributes of a product
- ei = Component is the evaluation of the level of consumer interest in the attributes of a product
- n = The number of attributes an object has

Operational variables could be explained in the Table 2 and Table 3.

Table 2.

The Level of Consumer Trust / Belief for Peel Mango Powder Attributes (bi)

Atribut		Level					
Taste	Very Undelicious	1	2	3	4	5	Very Delicious
Texture	Very Poor	1	2	3	4	5	Very Good
Form	Very Bad	1	2	3	4	5	Excellent
Colour	Less Interesting	1	2	3	4	5	Very Interesting
Smell	Very Unsavory	1	2	3	4	5	Very Savory
Composition	Very Poor	1	2	3	4	5	Very Good
Total		6			30		

Based on Table 2, explained that this research used six attributes is taste, texture, form, color, smell and composition with a Likert scale score of 1-5, where a score of 1 indicated Very Bad while a score of 5 was Very Good. The bi-component is the belief in the attributes of a product. In this case, the respondent has consumed the product and give a response to product. The bi-component represent the respondents feelings towards the product.

Table 3.

Consumer Evaluation/Important for Peel Mango Powder Attributes (ei)

Atribut		Level					
Taste	Very Unimportant	1	2	3	4	5	Very Important
Texture	Very Unimportant	1	2	3	4	5	Very Important
Form	Very Unimportant	1	2	3	4	5	Very Important
Colour	Very Unimportant	1	2	3	4	5	Very Important
Smell	Very Unimportant	1	2	3	4	5	Very Important
Composition	Very Unimportant	1	2	3	4	5	Very Important
Total		6			30		

Based on Table 3, explained that ei-component is the evaluation of the level of consumer interest in the attributes of a product. Considerations that make respondents want to buy essence powder products. This is analyzed using a Likert scale score of 1-5 where a score of 1 indicates very unimportant and a score of 5 is very important. Respondents to this study were respondents who had purchased and consumed essence powder products in the last two months so they could provide objective responses.

The analytical technique used in this study is the Fishbein multi-attribute, which aimed to determine consumer attitudes such as the level of confidence and assessment of the attributes of mango peel. There were three assessment components in this method: the bi-component is the belief in the attributes of a product, the ei-component is the evaluation of the level of consumer interest in the attributes of a product, and the Ao-component is the consumer's

attitude. Fishbein's analysis provided explanation of consumer attitudes both positive and negative toward a product, either goods or services. This analysis can also explain the gap between the level of importance and the evaluation of attributes perceived by consumers.

3. Results and Discussion

Results

Respondent profile

Most of the respondents were female which reached 12 percent and 18 percent were male.. The majority of respondents were in the age group of 20 to 22 years which was 66,7%, followed by the age group of 17 to 19 years at 30 %, followed by the age group of 23 to 25 years at 3,3 %. Previous research presented that in the all age group of 17 to 25-year was the peak of consumers in the phase of showing their existence on social media such as uniq food , making videos, content, and so on anywhere including at food vloger. Respondent interesting with product mango peel powder because uniq product , product have value icon of Indramayu city,and consumers were at the peak of consumptive junk food similar essence Taste powder powder or Taste sintetict for food and drink. The location research choose responden at campus so status all respondents student campus. Education affects the level of selectivity in choosing food and drink.

Consumer Evaluation of Mango Peel Powder Attributes

Consumers behave in evaluating what attributes are considered important in making decisions to purchasing product. The status of the level of importance, evaluation, and attitude are in the information below: a) Category of importance value to attribute (ei): 1- 1.80 means very unimportant; 1.81-2.60 means not important; 2.61-3.40 means normal/neutral; 3.41-4.20 means important; 4.21-5 means very important. Then b) The category of confidence value (bi) 1-1,80 means very bad; 1.81-2.60 means not good; 2.61-3.40 means ordinary; 3.41- 4.20 means good; 4.21-5 means very good. And c) Attitude category (Ao), very negative at 1-5.80; very negative on a score of 5.81-10.60; negative on the score: 10.61- 15.40; neutral on the score: 15.41-20.20; positive and very positive at 20.21-25. Total attitude category (Ao total) is very negative 6-34,8; negative 34,81-63,60; neutral 63,61-92,40; positive 92,41-121,20; and very positive 121,21-150. The results of the evaluation of the importance of attributes in this study are in Table 4.

Table 4.

Mango Peel Powder Attribute Importance Level Evaluation Score (ei)

Attributes	Average Score	Level of Importance
Taste	4,50	Very Important
Texture	4,00	Important
Form	3,63	Important
Colour	3,76	Important
Smell	4,30	Very Important
Composition	3,93	Important
Total of Attributes	24,12	Important

Source: primary data analysis

Based on Table 4, we can see that the overall attributes of mango peel powder are considered very important. The Taste rate attribute was perceived as the most important

attribute with a score of 4.50, which means that consumers choose important attribute is Taste. The attribute high score more of 4.30 is the response attribute to smell meaning that most important attribute for purchasing. One again the attribute high score 4.00 which means that consumers taken into consideration in choosing and purchasing product is texture attribute. While the attribute that had the lowest score of 3,63 is the response attribute to complaints, meaning that respondents response of form have unimportant to purchasing powder product or essence Taste powder powder. Finally priority attributes while consumer are taken into consideration in choosing and purchasing product powder or essence Taste powder powder is attributes Taste, smell and texture.

Table 5.
Confidence Score of Mango Peel Powder Attributes (bi)

Attributes	Average Score	Level of Confidence
Taste	4,26	Very Good
Texture	4,50	Very Good
Form	4,46	Very Good
Colour	3,36	Netral
Smell	4,23	Very Good
Composition	4,36	Very Good
Total of Attributes	25.17	Good

Source: primary data analysis

Based on Table 5, we can see that the attributes of texture, form and composition were attributes that gain consumer's trust. In Table 5 the overall attributes of mango peel powder are in the positive category and three of them are categorized as very positive while priority attributes, namely the attributes of the texture (4,50), form (4,46), composition (4,36). Consumers consider the completeness of texture and form because mango peel powder has same with product essence Taste powder powder in market. Attribute composition many consumers interesting because use waste to be high product value. In this case, consumers have a perception that product mango peel powder same quality with product essence Taste powder powder in market is soft texture and small form. While difference mango peel powder with another product at market is composition only use waste from manggo fruit. The results of data processing showed that the attributes of the texture, form and composition were attributes that gain consumer trust. So priority attributes while consumer are taken into consideration in choosing and purchasing product manggo peel powder is attributes texture, form and composition. While the attribute that had the lowest score of 3,36 is the response attribute colour to complaints, meaning that respondents response of colour not strong. Colour mango peel powder have pale yellow .

Table 6.
Tourist Attitudes on Attributes of Mango Peel Powder

Attributes	Manggo Peel Powder			Category
	ei	bi	Consumer's attitude/Ao	
Taste	4,50	4,26	19.17	Positive
Texture	4,00	4,50	18.00	Positive
Form	3,63	4,46	16.18	Positive
Colour	3,76	3,36	12.63	Netral
Smell	4,30	4,23	18.18	Positive
Composition	3,93	4,36	17.13	Positive
Total of Attributes	24,12	25,17	101.31	Positive

Source: primary data analysis

Discussion

Evaluation of the level of consumer's trust in the attributes of mango peel powder

Based on Table 6, from the results of the Taste attribute high score, consumer attitudes on the Taste attribute are positive, meaning that consumers consider Taste in choosing product mango peel powder. The Taste is good Taste and not different with Taste mango. Have Taste sweet can accepted with tongue . Taste is attributes importance for product. Consumers very interesting with Taste mango peel powder. The Tastes produced from processing mango fruit waste and have Tastes can be accepted by consumers. Taste describes the characteristics of a product. that Taste an important role in influencing consumer preferences and consumers prioritize to purchasing product .These results are consistent with the other research which stated that Taste an important role in influencing consumer preferences. Tasteful very important because consumers want good taste nice (Umasangadji et al., 2022) . The taste and quality factors are consumers' primary considerations in consuming products (Soesilowati et al.,2024). The Taste strategy used by the market product mango peel powder is quite good and competition from other product essence Taste powder powder or Taste sintetic.

The score of consumer attitudes on Texture attributes is very positive and second high score from Taste attributes, meaning that texture attributes are considered by consumers in choosing mango peel powder. These results are consistent with the other research which stated that Texture an important role in influencing consumer preference. The response attribute to Texture, meaning that respondents response is mango peel powder have soft texture same with similar product. Texture of food materials plays a key role in consumer acceptance and market value (Alemu., 2023). Products to be successful, their textural properties must be acceptable to consumers (Moss et al., 2023).

The attribute of the smell a very positive score and third high score from Texture attributes. meaning that consumers factors are important elements in consumer preferences. Smell can attract customers desire to buy and consume products. The results of this study are also consistent with the similar research which stated that smell can impact liking product to buy and consume products (Ervin., 2024). Smell can stimulation of the sense of smell thereby increasing interest and taste for beverage products(Andika et al.,2023)

The composition gets a positive score ,which means tha consumers consider the unique attributes of the composition product. Mango peel powder using natural raw materials without

preservatives and artificial colouring. No preservatives/natural” was the information that most influenced consumer’s purchase intent. The results of this study are also consistent with the similar research which stated that information composition that most influenced consumer’s purchase intent. The label offers an important tool that can help consumers to make better food choices and the decision to purchase. (Ferrarezi et al., 2013). That health concerns for information composition play a significant role in consumer intention of purchasing (Baldissera et al., 2022).

The attribute of the form a positive score, but low positive score between other score. meaning that consumers are form mango peel powder undifferent with similar product in market, which means this considered a attribute to consumer preferences . The forms of/on food product packaging have all been shown to influence people’s taste expectations (Spence., 2022).

The attribute of the colour a netral score and low score between other score. meaning that consumers are colour mango peel powder have pale yellow so not strong colour. Different with other product in market wich have strong colour so colour is popular elements in consumer preferences. Colour was by far the most important factor for consumers (Pons-Gomez et al., 2023). The colour and other visual appearance properties of food and drink constitute a key factor determining consumer acceptance and choice behaviour. Not only do consumers associate specific colours with particular tastes and Tastes, but adding or changing the colour of food and drink can also dramatically affect taste/Taste perception (Spence & Levitan., 2022)

The researcher's findings in this research are that priority attributes are taken into consideration in choosing mango peel powder there is Taste, Smell and Testure. Consumer attitude is consumers like mango peel powder this can be seen score total a positive score. The results of this study are also meaning that attribute of Taste, smell and form considered by consumers preferences.

There are several attributes that are relevant to previous research, including : Taste, Smell, Texture, composition . The novelty of this research is the finding of new factors, including: form and colour. the majority of previous research results are packaging forms and packaging colour for adversiting . In this study, the form of the mango peel powder not the packaging forms,and colour of the mango peel powder not colours packaging for adversiting.

4. Conclusion

Five attributes of research services had a positive score, and one of them are netral colour of attributes. This means that consumers consider five attributes of choosing mango peel powder. As for the attributes of the Taste , smell and texture, these are attributes that are highly prioritized, because consumers attach importance to a Taste is good and no difference with similar products. Consumers think mango peel powder has a pleasant smell and good texture. Research suggestions to the Consumer attitude of mango peel are improvements from stronger colours. Experiences are important in the memory of individual experiences that can encourage potential consumers to consume the product. Then sellers can consider high priority attributes so that they become priorities to increase the number of product purchases.

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