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Analysis of Rusip Product Development: Product Profile, Raw Materials, Product Form, Packaging, and Marketing Techniques in Indonesia

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ABSTRACT Rusip is a traditional fish fermentation product typical of coastal communities in Sumatra, particularly Bangka Belitung. Rusip is made from small fish such as anchovies or bilis that are fermented using salt and palm sugar. This product has the potential to be developed to increase production and competitiveness. This study aims to analyze the development of rusip based on product profile, raw materials, product form, packaging, and marketing techniques. The study was conducted qualitatively using a comparative descriptive analysis method. Data collection was carried out through secondary data observation by reviewing various literature sources related to rusip product development published between 2010 and 2025. The results show that rusip products have undergone developments in raw materials, product form, packaging, and marketing techniques. The raw material, which initially used anchovies, has now been replaced with rucah fish, while fermentation, which previously used spontaneous fermentation bacteria, now uses Lactic Acid Bacteria (LAB). In addition, the paste product form has been developed into a powdered seasoning form, non-vacuum packaging has been developed into vacuum packaging, and marketing techniques, which were initially carried out directly and gradually using WhatsApp and Facebook, have now shifted to e-commerce-based marketing such as Shopee and Instagram.

Keywords: Fermentation; packaging; product development; rusip.

INTRODUCTION

Product development is a comprehensive process that includes the stages of planning, design, production, and marketing of new and existing products. This process requires the application of systematic strategies and stages to create or refine products so that they can meet consumer needs while providing competitive added value (Sutaguna *et al*., 2023). According to Luthfiyana *et al*. (2024), product development activities aim to update products that have experienced a decline in market performance, adapt to emerging trends in society, respond to competitive dynamics, explore the potential of new products that have not been utilized, expand market reach and consumer base, and strengthen the position of products in meeting identified market needs.

In the context of modern industry, product development has an increasingly strategic role in line with increasingly diverse consumer preferences and increased awareness of health and environmental sustainability aspects. Product innovation efforts are key to facing intense competition. The creation of unique, high-quality products that are clearly differentiated from competitors can be a major source of competitive advantage and contribute to business sustainability (Djazuli *et al*., 2024).

Rusip is a traditional Indonesian fermented fish product that is widely known in the Bangka Belitung region. This product has become an important part of the local culinary tradition and serves as a source of animal protein for the community. Traditionally, rusip is made using a simple technique, which involves fermenting fresh fish using a mixture of salt and brown sugar or palm sugar in a closed container. Although it produces a distinctive flavor that combines sour, salty, and savory tastes, this method has a number of limitations, such as the length of fermentation time, which is not standardized, differences in quality between production processes, and the relatively low shelf life of the product (Susianti *et al*., 2020).

With increasing attention to food safety aspects and global market demands for functional foods, research and innovation on rusip products have become increasingly important. Development efforts include optimizing the production process through standardization of formulations and fermentation times (Koesoemawardani & Ali, 2016), the use of specific microbial starter cultures to maintain quality consistency (Batubara *et al*., 2019), and the application of modern packaging technology and product form diversification, such as processing into more stable instant paste or powder (Susianti *et al*., 2020). The development of this product is in line with the needs of modern industry to update products so that they do not experience a decline in market performance, adapt to consumer trends, and respond to increasingly fierce competition. Rusip has a distinctive sweet and sour taste and aroma, which makes it highly potential to be processed into a flavoring or seasoning, but its aromatic compounds are volatile, requiring further innovation to maintain its stability.

The novelty of this study lies in its comparative and descriptive analysis of various rusip product innovations that have been carried out, including the replacement of anchovies with rucah fish as the raw material, the transformation of the product into spice powder, the upgrade from non-vacuum to vacuum packaging, and the modernization of marketing techniques from conventional to e-commerce-based. The purpose of this study is to analyze the development of rusip products in Indonesia, based on product profiles, raw materials, product forms, product packaging, and marketing techniques. By analyzing these aspects, the identified development strategies can strengthen the position of rusip in the culinary industry and concretely improve the productivity, quality, and competitiveness of products in the market.

MATERIALS AND METHODS

Materials

This study utilized secondary data as the primary material, which were obtained from pre-existing sources (Beno *et al*., 2022). The data were collected from various scientific publications relevant to the development of the traditional fermented food product rusip, including scientific journals, reference books, research reports, and online information related to production processes, product characteristics, packaging, and marketing.

The tools used in this study included a laptop as the main device for accessing, processing, and analyzing literature, internet access for retrieving references, and supporting software such as Microsoft Word and Mendeley for manuscript preparation and reference management.

Methods

This study employed qualitative research design with a descriptive approach. According to Junianto *et al*. (2025), qualitative research is used to examine an object in which the researcher acts as the main instrument in the process of data collection and analysis.

Data were collected through observation of secondary data by reviewing 15 selected literature sources related to the development of the traditional fermented fishery product rusip, obtained from Google Scholar, SINTA, ResearchGate, and national repositories, and screened using keywords such as rusip, fermented fish products, traditional fermentation, and product development, with inclusion limited to full-text publications from 2010–2025 that were relevant to production processes, product characteristics, packaging, or marketing; the final data were then analyzed using a descriptive comparative method to identify the potential and direction of product development based on the available information (Zayu *et al*., 2023).

Statistical analysis

This study does not employ quantitative statistical analysis but rather uses a qualitative descriptive comparative analysis that focuses on the interpretation of meaning, patterns, and comparisons derived from various data sources (Junianto *et al*., 2025).

RESULTS AND DISCUSSION

Rusip fish product profile

Rusip is a fermented product made using anchovies, salt, and palm sugar as the main ingredients. In the manufacturing process, these three ingredients are mixed evenly, then fermented spontaneously for 7 to 21 days (about 3 weeks) in anaerobic conditions (Puspita *et al*., 2024).

Figure 1. Conventional rusip (Source: Beritadaerah.co.id).

Rusip products derived from the fermentation of Stolephorus sp. anchovies exhibit sensory profiles, particularly in aroma, color, and texture, as fermentation progresses. The following are the results of sensory tests in the study by Puspita *et al*. (2024), that approximate commercial rusip products:

Table 1. Commercial rusip sensory standards.

Parameters	Criteria	Notes
Color	Reddish brown, not pale or black	Indicators of fermentation and oxidation processes.
Aroma	Characteristic fermented aroma (sour), no rotten/ammonia smell	Aroma reflects microbial quality and cleanliness.
Texture	Paste/semi-paste; not excessively soft and watery	Texture is influenced by water content and fermentation duration.

The sour aroma in the product comes from lactic acid and other organic acids formed during the breakdown of glucose by lactic acid bacteria (LAB) (Susilowati *et al*., 2014). Research by Koesoemawardani *et al*. (2013) shows that the total acid value increases with the duration of fermentation. On the other hand, the distinctive aroma in other fermented fish products is caused by compounds such as methyl ketone, butyl aldehyde, amino, and other compounds formed from the degradation of fat and protein. In general, the color of rusip is grayish brown, which comes from a combination of the grayish color of anchovies and the color of palm sugar (Susilowati *et al*., 2014). Afriani *et al*. (2018) stated that rusip production is considered successful if the texture of the meat becomes soft and mushy with a distinctive sour taste because of the fermentation process. Mellisa *et al*. (2017) mentioned that in general, fermented anchovies will undergo a change in texture from whole to crushed, cloudy, and watery.

Raw material development

Fish rusip is a traditional fermented product typical of coastal communities in Sumatra, particularly in Bangka Belitung and surrounding areas. Rusip is made from small fish, such as anchovies or bilis, which are fermented with a mixture of salt and palm sugar for several days to several weeks (Susianti *et al*., 2020). One package of rusip requires 100 grams of anchovies as raw material, with an additional 5% palm s ugar and salt (Batubara *et al*., 2019). However, as research progresses, anchovies can be replaced as raw material. Fish rusip products can use rucah fish as a base ingredient to reduce dependence on anchovy stocks (Maharani & Junianto, 2024). Based on research by (Ahillah *et al*., 2017) on the fermentation of rucah fish, the fish used as raw material is wader fish (*Rasbora lateristriata*). Wader fish is also commonly used as raw material for other fermented foods such as tempoyak.

During the manufacturing process, rusip is spontaneously fermented under anaerobic conditions for a maximum of 21 days. The disadvantage of spontaneous fermentation is that the low initial population of lactic acid bacteria allows spoilage bacteria, histamine producers, and pathogens to grow faster than lactic acid bacteria. According to Batubara *et al*. (2019), the low population of lactic acid bacteria causes spoilage bacteria and pathogens to grow rapidly, outcompeting the growth of lactic acid bacteria. This can reduce the quality and safety of the product if not properly monitored. The fermentation time for this method is also relatively longer, considering that the process of protein decomposition by natural microorganisms occurs at an uncertain rate, so there needs to be development regarding the raw materials, namely by adding 2% lactic acid bacteria starter. Generally, it takes 21 days to make rusip using the spontaneous fermentation method, but with the addition of *Lactobacillus plantarum* starter bacteria, it only takes 8 days to reach the maximum stage of fermentation.

The maximum fermentation stage in rusip can be understood as the condition when fermentative microbial activity reaches its optimal point, producing the highest level of organic acids without compromising the sensory quality of the product. At the most suitable salt concentration, fermentation shows the highest number of microbes and the most optimal production of organic acids, indicating that the microorganisms are in an active growth phase and are able to convert the substrate efficiently. At this stage, the pH is still within a range that supports microbial activity, while the process temperature remains stable so that biochemical reactions proceed properly. These conditions reflect the peak fermentation phase, when microbial activity reaches its highest intensity before declining due to the accumulation of metabolite products or reduced nutrient availability (Batubara *et al*., 2019).

Product form development

One innovation in rusip processing is its transformation into seasoning powder. This powder form expands its potential applications, for example as a flavor enhancer in various food products. Research shows that the addition of Rusip powder can increase the protein content in crackers (Koesoemawardani & Ali, 2016). The results of the formulation optimization study found that the addition of 10%t. Rusip powder produced the best physical and chemical characteristics in accordance with SNI standards for fish crackers, this explanation is supported by SNI SNI 01-2713-1992, which discusses standard parameters such as moisture content, protein content, and expansion volume.

At this concentration, the highest expansion volume of 70.24%, protein content of 4.44%, and moisture content of 9.07% were obtained, which are still considered safe for dry products. This innovation has successfully transformed Rusip from a direct consumption product into a functional food ingredient that can enhance the nutritional value of other processed products (Koesoemawardani *et al*., 2018).

However, converting rusip into powder form poses technical challenges, particularly related to the potential loss or alteration of volatile compounds responsible for its distinctive aroma during the drying process. To overcome these aroma and flavor stability issues, various encapsulation technology approaches have been applied using stabilizing agents such as alginate and gum arabic. Gum arabic is obtained through a natural exudation process from acacia trees and is then converted into powder. This hydrocolloid compound is very useful in preserving the aroma of dried ingredients, particularly due to its ability to form a protective layer around aromatic compounds during processing. Thus, gum arabic can be added to powdered products such as rusip powder to protect flavor particles. Gum arabic also has heat-resistant properties, making it ideal for products that require heating. In line with the findings of Rizqiati *et al*. (2009), the main function of gum arabic is to preserve the flavor of foods that will be dried, especially when using the spray drying method. The use of alginate as a stabilizing agent was studied in 2017, with results showing that a 5% concentration of alginate combined with heating at 50°C to 70°C was effective in retaining volatile compounds. This condition produced Rusip powder with a high protein content (27-28%) and low moisture content (5.98-7.57%) (Koesoemawardani & Ali, 2016). Powdered Rusip requires absolute protection from moisture and oxygen to maintain its physical properties (prevent caking) and the stability of its volatile aromas (which have been encapsulated). High-barrier materials such as laminated aluminum foil are recommended (Koesoemawardani & Ali, 2016).

The application of encapsulation technology is very important because it not only serves to maintain the desired aroma but also addresses potential off flavors that may arise from TVN (Total Volatine Nitrogen) which is the total amount of nitrogen compounds that are alkaline (volatile) formed in food products (Koesoemawardani & Ali, 2016). These compounds include ammonia, trimethylamine (TMA), dimethylamine (DMA), other volatile amine compounds. residues even though they have been controlled at the fermentation stage. Olfactory and hydroscopic stability are key to ensuring that Rusip powder can compete as an instant seasoning in the market (Koesoemawardani & Ali, 2016). Meanwhile, another study in 2020 tested gum arabic as an alternative stabilizing agent. The results showed that gum arabic was able to stabilize the aroma of the product, but increasing its concentration to 7.5% also caused an increase in the sugar content in the powder to 8.93% compared to the control. This condition made the product more hygroscopic, requiring packaging with a higher level of airtightness to prevent damage due to moisture (Susianti *et al*., 2020).

Product packaging development

The characteristics of brine composition define very specific packaging resistance requirements. Brine is characterized by extreme acidity and salinity levels. The pH value of commercial brine generally ranges from 5.01 to 6.10, in accordance with the minimum quality standard SNI 01-4271-1996 namely, the determination of salt content in processed products ranging from 19 to 25%, which specifies a pH between 5 and 6. Along with acidity, the salt (NaCl) content of this product is very high, varying between 17% and 30%. This combination of low pH and extreme salinity creates an environment that is highly corrosive to many packaging materials. Microbiological aspects are also important. The population of lactic acid bacteria (LAB) in non-spontaneous rusip can reach 12.37 log10 cfu/g. If rusip products are packaged without adequate heat treatment (e.g., cooked for at least 6 minutes for sambal rusip 2), fermentation activity can continue after sealing. This continuous fermentation has the potential to produce gas Carbon Dioxide (CO_2), which can cause flexible packaging to bulge or even leak, requiring packaging materials with high mechanical strength (Koesoemawardani *et al*., 2013). Due to the corrosive nature of rusip, compliance with packaging regulations is fundamental to product safety. The Food and Drug Supervisory Agency (PerBPOM) Regulation No. 20 of 2019 regulates in detail the permitted food contact substances and food contact materials, as well as setting specific migration limits. Micro, small and medium enterprises are required to ensure that the plastic materials used, including the additives in them, have been tested and meet the migration limits in acidic media, to prevent the release of packaging compounds into food products. Additionally, based on Ministry of Industry Regulation No. 24/M-IND/PER/2/2010, all food plastic packaging must display the food safety logo and recycling code.

Research conducted by Wahyuni *et al*. (2021), shows that vacuum packaging has a significant effect on extending the shelf life of products. Products with non-vacuum packaging experienced a decline in sensory quality and were declared unfit for consumption in the second week. In contrast, vacuum-packed products were able to maintain their sensory quality until the third week. Thus, the use of vacuum packaging has been proven to extend the shelf life of rusip by about 50% longer than non-vacuum packaging. The decline in sensory value, especially in terms of taste, occurred more quickly in non-vacuum products due to the presence of oxygen, which allowed the growth of spoilage microorganisms. Based on research by Wahyuni *et al*. (2021), vacuum packaging has a significant impact on extending the shelf life of rusip compared to non-vacuum packaging. The main advantage of vacuum packaging is its ability to remove oxygen from the packaging. This removal of oxygen effectively inhibits the growth of spoilage microorganisms that need oxygen to multiply. As a result, sensory quality deterioration-particularly taste-occurs much more slowly in vacuum-packed products. This is evident from non-vacuum-packed rusip becoming unfit for consumption by the second week, while vacuum-packed products maintain their sensory quality until the third week, proving that the use of vacuum packaging can extend the shelf life of rusip by approximately 50% longer than conventional packaging.

Figure 2. Rusip package (Palupi *et al*., 2018).

The following are several tables displaying data on test results for products derived from carp (*Cyprinus carpio*) packaged using vacuum and non-vacuum methods from Wahyuni *et al*. (2021):

Table 2. Total plate count (TPC).

Storage period (Weeks)	TPC (log CFU/g)	
	Non-vacuum	Vacuum
0	5.14 ± 0.07^{d}	4.92 ± 0.10^{d}
1	5.54 ± 0.17^{c}	5.19 ± 0.03^{d}
2	7.08 ± 0.13^{b}	5.52 ± 0.04^{c}
3	7.32 ± 0.09^{a}	6.84 ± 0.09^{b}

Lowercase letters such as a, b, c, and d that follow the mean value standard deviation in scientific tables such as Total Plate Count (TPC) results serve as markers of statistical analysis of mean comparisons or follow-up tests such as Duncan, Tukey, or LSD. This notation is a visual and concise way to group mean values that are not statistically significantly different from each other at a certain confidence level. Conversely, means with different letters, for example, values with 'a' compared to values with 'd' indicate a statistically significant difference. In the context of the TPC table, the shift from the letter 'd' to 'a' as storage time increases (0 to 3 weeks) clearly indicates that the longer the storage period, the more significant the increase in TPC, and each increase in the average in the following week is significantly different from the previous week, especially in the non-vacuum treatment.

The results showed that the total bacteria count in instant rusip with non-vacuum packaging was higher than in vacuum packaging. The highest total bacterial count was recorded at log 7.32 CFU/g in the third week of storage in non-vacuum packaging, while the lowest count was found in vacuum-packed instant rusip in week 0, at log 4.92 CFU/g. However, the total plate count (TPC) in instant rusip was still relatively high. This condition was caused by several factors, one of which was the fermentation process involving lactic acid bacteria activity, so that some of the bacteria counted were likely microorganisms that played a role during fermentation. In addition, the increase in the population of spoilage bacteria over the duration of storage also contributed to the high TPC value. The growth of spoilage bacteria is influenced by water activity (Aw), pH, and storage conditions. Danarsi & Noer (2016), emphasize that in addition to Aw and pH, nutrient content, storage temperature, processing, and oxygen availability also affect microbial growth in food. Suboptimal packaging processes can allow bacterial contamination from the air.

The main difference in TPC between vacuum and non-vacuum packaging is mainly due to the availability of oxygen. Aerobic bacteria need oxygen to grow, while anaerobic bacteria can still be active without it. During storage, spoilage bacteria can continue to grow, thereby reducing product quality. Vacuum packaging has been proven to be effective in suppressing the growth of aerobic bacteria, as the absence of oxygen inhibits the activity of these microbes. This is in line with Rauf (2013), statement explaining that most spoilage bacteria are aerobic, so the presence of oxygen will accelerate their growth. Therefore, the use of vacuum packaging or the addition of inert gas to the packaging space can be an effective strategy to control microbial growth and extend product shelf life.

Table 3. Moisture content.

Storage period (Weeks)	Mouisture content (%)	
	Non-vacuum	Vacuum
0	32.75 ± 1.2[d]	33.01 ± 0.84[d]
1	43.04 ±1.15b[c]	40.50 ± 1.06[c]
2	44.97 ± 0.69[b]	43.32 ± 0.89[bc]
3	50.86 ± 1.55[a]	43.68 ± 0.34[b]

During the first week of storage, the product still showed a relatively low moisture content, both in vacuum and non-vacuum packaging, which was around 30%. This condition was caused by the characteristics of the packaging material used, namely Polyethylene (PE), which has high permeability to air and water vapor compared to Polypropylene (PP). This property makes PE less effective in preventing moisture from entering from the outside environment. In addition to the type of packaging, the increase in moisture content during storage can also be influenced by the activity of aerobic bacteria, which produce free water as a metabolic product (Maharani & Junianto, 2024).

Table 4. Protein Level.

Storage period (Weeks)	Protein level (%bk)	
	Non-vacuum	Vacuum
0	48.22 ± 0.74[a]	48.16 ± 0.88[a]
1	41.70 ± 0.53[b]	46.75 ± 1.12[a]
2	40.91 ± 1.27[b]	45.35 ± 1.67[a]
3	33.13 ± 2.14	42.50 ± 0.77[c]

Bacterial growth is closely related to the Total Plate Count (TPC) value, where a decrease in protein content tends to be followed by an increase in TPC value. Liviawaty & Afrianto (2010), explain that this occurs because fish meat is an ideal medium for bacterial growth, given its high protein content. During storage, an increase in the number of bacteria indicates a decrease in the freshness of the fish, which has implications for the decline in the quality of fish-based processed products.

The decline in protein content occurs more rapidly in non-vacuum packaged products compared to vacuum-packed products. This condition is caused by the activity of bacteria that break down organic compounds in the product, producing simple protein compounds. Another factor contributing to accelerated protein decline is packaging that is not airtight, allowing for more intensive degradation. According to Salim & Triana (2017), the breakdown of protein by enzymes and bacteria produces free amino acids and volatile nitrogen compounds, such as ammonia and other nitrogen bases. This is also supported by the findings of Purnamayati *et al*. (2018), who stated that high oxygen availability in non-vacuum packaging increases the activity of aerobic microorganisms, especially protein-degrading bacteria. This activity produces volatile compounds such as hydrogen sulfide (H_2S), ammonia, and indole, which cause unpleasant odors and indicate a decline in product quality.

Table 5. TVBN (Total Volatine Nitrogen) Level.

Storage Period (Weeks)	TVBN (mgN/100g)	
	Non-Vacuum	Vacuum
0	48,75 ± 0,85d	48,29 ± 0,85d
1	58,85 ± 1,79c	50,43 ± 1,45d
2	60,05 ± 2,51bc	55,60 ± 0,55c
3	66,63 ± 2,21a	64,15 ± 1,37ab

During storage, the Total Volatile Base Nitrogen (TVBN) value tends to increase as the protein content in the product decreases. This increase indicates protein degradation due to microbial activity during storage. Fermented products, such as rusip, generally have higher TVBN values because they have undergone protein breakdown since the initial fermentation stage. Hadiyanti & Wikandari, (2013) reported that the TVBN value in spontaneous rusip with salt concentrations of 1% (395.70 mgN/100g), 2.5% (250.13 mgN/100g), and 10% (237.07 mgN/100g) exceeded the permissible consumption threshold of 200 mg/100g. These values indicate that the increase in TVBN is directly proportional to the rate of decay and decline in product quality.

Mechanistically, the increase in TVBN levels is caused by protein degradation, which produces volatile nitrogen compounds such as ammonia, trimethylamine, and dimethylamine. According to Mueda (2015), TVBN values are used as indicators of the quality and level of decay of fishery products, where high levels indicate advanced protein degradation due to microbial activity. These volatile nitrogen compounds are formed through tissue autolysis and microbial decay that occur during fermentation and storage. TVBN itself is a combination of ammonia, dimethylamine, and trimethylamine, which is used as a standard rejection parameter in commercial quality specifications. An increase in the levels of these nitrogen compounds is related to the activity of microbial proteolytic enzymes and the utilization of amino acids during the fermentation process, both of which contribute to a decline in the quality of processed fish products.

Marketing technique development

Marketing is a process of distributing a product to the public with the aim of meeting consumer needs and desires so that both parties' benefit, namely the company, which earns a profit, and consumers, who gain satisfaction (Ariyanto *et al*., 2023). Marketing is very important to make our products known to the market. An effective marketing technique is to market through e-commerce (Husniar *et al*., 2023).

Intially, most Rusip businesses only used offline approaches, then moved on to using WhatsApp and Facebook. Over time, several training and mentoring programs have been conducted to improve the capabilities of business owners in growing their businesses. As a result, Rusip business owners now have accounts on e-commerce platforms such as Instagram and Shopee. They also know how to create interesting and relevant content and how to interact with consumers to build better relationships (Syarif *et al*., 2024).

Figure 3. Rusip in e-commerce Facebook.

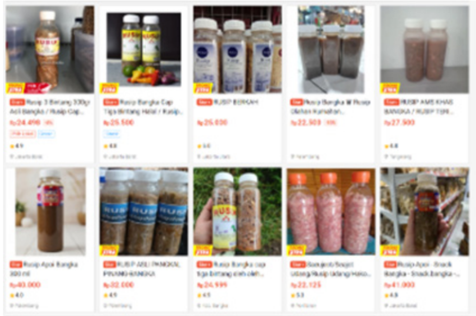

Figure 4. Rusip in marketplace Shopee.

The use of electronic commerce or e-commerce platforms has significant economic value, so business actors must make good use of it because this type of creative business can boost the Indonesian economy (Irawati & Prasetyo, 2021). Therefore, with the mastery of these skills, it is hoped that Rusip Betapak business actors can expand their market, increase sales, and of course reach consumers outside the local area (Oktiansyah *et al*., 2025). This statement is also supported by Husniar *et al*. (2023), who state that an effective strategy for marketing products is through e-commerce platforms such as Shopee, Tokopedia, and Lazada. Product development strategies through online marketing can increase business competitiveness, as evidenced by the large number of products sold on marketplaces or e-commerce platforms.

CONCLUSION AND RECOMMENDATION

Conclusion

Rusip is a fermented product made from anchovies, salt, and palm sugar. The innovations carried out include raw materials, form, packaging, and product marketing. Raw material-based development includes replacing anchovies as the base ingredient with rucah fish such as wader fish (*Rasbora lateristriata*). Then, in the manufacturing process, which initially used spontaneous fermentation bacteria, now uses Lactic Acid Bacteria (LAB) so that the product is free from bacteria other than fermentation bacteria. Form development includes transforming rusip into a spice powder that can expand its potential applications. Packaging development involves changing from non-vacuum packaging to vacuum packaging. The development of packaging for liquid rusip involves a shift from non-vacuum packaging to vacuum packaging. Marketing development, which initially promoted only offline and then gradually used Facebook and WhatsApp, can now make better use of social media and e-commerce to reach a wider range of consumers. The development strategies implemented by rusip product businesses can strengthen their position in the culinary industry to increase productivity, quality, and product competitiveness in the market.

Recommendation

Rusip products are expected to continue to grow both domestically and internationally through marketing via websites so that the products remain well-known and sustainable.

AUTHORS' CONTRIBUTION

J: conceptualized the research ideas and supervised the study as well as the manuscript preparation. RND, MNR, and NTF: Contributed to the manuscript writing. SH, GP, and INP: Performed data analysis. All authors contributed to the funding of this research.

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