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Dadiah: As a Highly Nutritious Probiotic Drink Typical of Minangkabau and Ethnoscience-Based Science Learning Resources

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Abstract: The purpose of this article is to provide a clear picture of Dadiah from two different perspectives. On the one hand, Dadiah is a probiotic drink typical of the people of West Sumatra or Minangkabau, from generation to generation. On the other hand, the process of making curd is a chemical fermentation process that can be used as part of an ethnoscience-based science learning resource. All activities in writing this article are based on literature studies. Literature study was carried out entirely with the aim of getting as much information as possible about the object of writing. From the literature study that has been carried out, several conclusions can be drawn. Curd, very rich in nutrients and beneficial for health, as a source of probiotics. Curd contains good bacteria in the form of lactic acid probiotics so it has the opportunity to be developed as a functional food. On the other hand, the description of the Dadiah processing process will be able to better assist the tasks of teachers in schools, especially in ethnoscience-based science learning. In this learning, transfer from community knowledge to scientific knowledge is carried out. In the end, this paper is expected to be a source of inspiration for Dadiah researchers in particular and fermented milk in general, for further studies. In addition, the chemical fermentation process in the process of making curd, can be used as a source of ethnoscience-based science learning in the future.

INTRODUCTION

As previously noted, Indonesia is rich in the diversity of traditional foods and biodiversity, from various regions, with potential health benefits. Dadiah is a traditional fermented milk from cow's milk from West Sumatra which involves spontaneous fermentation and indigenous lactic acid bacteria involved in fermentation, with the result that the product resembles yogurt, and is believed by local residents and surrounding areas to provide health benefits. Like yogurt, Dadiah is also classified as a probiotic drink. Probiotics are defined as “live microorganisms which when consumed in adequate amounts confer a health benefit on the host or those who consume them”.

Dadiah can be classified into probiotic drinks. The criteria for selecting probiotics were tolerance to gastrointestinal conditions, such as resistance to gastric acid and bile salts, the ability to adhere to the gastrointestinal mucosa and competitive exclusion of pathogens. Adhesion to the intestinal mucosa will allow the process of colonization. Colonization is transient, transitory and not permanent in the human intestinal tract and is associated with the ability to modulate the immune system. The effectiveness of the function of probiotics is specific to the strain and dose. Probiotics that meet these criteria are generally lactic acid bacteria with GRAS (Generally Recognized as Safe) status, which is safe when consumed, especially *Lactobacillus* and *Bifidobacterium* species. However, some strains of *Lactococcus*, *Streptococcus*, *Enterococcus* species, and *Escherichia* sp can also be potential as probiotics. Bacteria *Enterococcus faecium* IS 27526 and also *Lactobacillus plantarum* IS-10506 are

superior isolates of lactic acid bacteria present in Dadiah which have been shown to have potential as probiotic bacteria, and proven in vitro to have probiotic properties such as acid resistance, bile salts, ability to adhere to intestinal epithelial cells able to compete and inhibit certain pathogenic bacteria, especially *E. coli*.

On the other hand, the process of making curd can be used as a source of ethnoscience-based science learning. Ethnoscience (ethnoscience) comes from the word *ethnos* (Greek) which means nation, and *scientia* (Latin) which means knowledge. So, it can be said that ethnoscience is knowledge possessed by a cultural community or national community. Ethnoscience, focuses on studying a knowledge system and certain types of cultural cognitive. It could be an emphasis on indigenous and distinctive knowledge of a cultural community. Furthermore, Henrietta L. (1998) suggests that ethnoscience can also be regarded as a branch of cultural studies that seeks to understand how indigenous people understand their nature. Of course, the natives usually already have an ideology and philosophy of life that can be relied on to maintain their lives and livelihoods.

Awareness of the importance of rediscovering local wisdom values and revitalizing them through the educational process is a trend that started in Japan. Indonesia is also a nation that is rich in noble values and local wisdom that must be lived and preserved. Advances in science and technology do not necessarily have to make the Indonesian people poor in identity or lose their identity. Many ethnic groups in the archipelago that have had a long civilization waiting to be explored and revitalized. It is undeniable that Indonesia is a country rich in cultural diversity, arts, customs, ethnicity, ethnicity and race, language, values, and environmental management. This cultural diversity can be optimized as a source of science learning in schools. This needs to be done with the hope that students will care more about the community and the surrounding environment, so that the learning carried out will be more meaningful. Meaningful learning can be done by linking science concepts with community activities around students, especially activities related to the culture and customs of the surrounding community which is one of the identities of the Indonesian nation. Therefore, it is necessary to increase the identity of ownership of local culture in Indonesia as a source of learning in science education.

Through ethnoscience, cultural researchers will actually be able to build grass-roots theories and do not have to adopt western cultural theories that are not necessarily relevant. Ethnoscience research on cultural phenomena is always based on ethno and or folk. The presence of ethnoscience, according to Spradley (2001) will indeed give a breath of fresh air to cultural research. Every society experiences growth and development due to changing needs from time to time. In this development, various problem-solving processes occur for a better and more prosperous life through technology. The development of science and technology cannot be separated from positive and negative impacts. This, too, is no exception in the area of West Sumatra or better known as the popular Minangkabau term.

West Sumatra or Minangkabau is also one of the regions in Indonesia that is rich in cultural customs, and a variety of living habits that have been passed down from generation to generation from the time of their ancestors. Various customs, cultures, including food and drinks, all of which color the life of the Minangkabau people. Not to forget, related to ethnoscience, there are various real but simple examples of several topics that can be brought to the surface, such as dadiah, gelamai, nira, and others. This paper tries to focus the discussion on Dadiah, as a culinary probiotic drink typical of Minangkabau, which is very good to be promoted as a useful healthy culinary, as well as when viewed from its ethnoscience studies.

Dadiah in Minangkabau language or Dadiah in Indonesian is a traditional fermented milk that is popular among the people of West Sumatra. Usually this dadiah is made by pouring fresh, raw, unheated cow's milk into a bamboo tube covered with banana leaves. The use of bacteria is done naturally, namely by using the bacteria contained in the bamboo, but for the selection of the bamboo itself, you must use bamboo that is still fresh or bamboo that has not been dried. In addition, in the process of making curd, it must be in a room that is not exposed to direct sunlight. Next, the cured milk is allowed to ferment spontaneously at room temperature for two days, forming a lump or paste.

The formation of this lump or paste as a result of a decrease in pH by the activity of the fermentation process. The decrease in pH also causes the taste to be slightly sour due to the formation of lactic acid as the main product of the metabolism of lactic acid bacteria. This food is usually consumed raw (without being cooked or heated so that the cells stay alive) by mixing curd and sticky rice, grated coconut plus coconut sugar or it can also be eaten with sambal lado and served as a refreshing drink in stalls by adding ice and sugar (Hosono et al. 1985; Nakazawa & Hosono 1992). In essence, milk is fermented by the native lactic bacteria found in cow's milk. Its natural fermentation produces different types of lactic acid bacteria which are involved in each fermentation. [1] The original natural lactic acid bacteria found in curd can come from bamboo tubes, cow's milk, or banana leaves. Usually, dadiah is eaten for breakfast, mixed with ampiang (traditional sticky rice keris) and palm sugar, or eaten as a side dish with hot rice.

Several studies on the probiotic properties of the original strains isolated from Dadiah were found to exhibit antimutagenic and antipathogenic properties, as well as acid and bile tolerance [3] [4]. Natural and wild strains isolated from Dadiah showed inhibitory, competitive, and repellent properties against pathogens. This fact makes Dadiah a promising candidate for probiotics in the future [5] [6]. *Lactobacillus plantarum* strain from dadiah played an important role in removing microcystin-LR, a cyanobacterial toxin. This wild strain of *Lactobacillus plantarum* from dadiah has the highest removal ability when compared to other commercial probiotic strains. These findings offer a new and economical tool to decontaminate water-containing microcystin. In addition, curd is thought to be effective as an anti-vaginitis.[7][8][9][10]. The purpose of this article is to provide a complete picture and it is clear about Dadiah from two different sides. On the first hand, Dadiah (also known as Dadiah), is a kind of probiotic drink which is one of the culinary specialties of the people of West Sumatra or the Minangkabau region, which has been passed down from generation to generation. While on the other hand, the process of making Dadiah, is a chemical fermentation process that can be used as part of an ethnosience-based science learning resource.

METHODOLOGY

This paper aims to try to introduce Dadiah as a very good Minangkabau food to be developed into a kind of yogurt, which incidentally is very good for health, because it contains good bacteria or probiotics. All activities in writing this article are based purely on literature study. Literature study was carried out entirely with the aim of getting as much information as possible about the object of writing. For the diversity of information, it is endeavored to collect information from various sources of information, both in the form of books, journals, articles, not to forget the writings of previous researchers as outlined in essays or discourses, both published in print media and online media. All the information that has been obtained earlier is then tried to be linked to each other, combined, and conclusions are drawn. In this case, the process of making curd, which is basically a chemical fermentation process, is expected to be used as a learning resource in ethnosience-based science learning in the future. As is well known, in this ethnosience-based learning, the main principle, method, or activity is to transform from community knowledge into scientific knowledge.

RESULTS AND DISCUSSION

Along with increasing human awareness of the importance of healthy living, there is also an increase in research and marketing of food products that have the potential to maintain a healthy body. Food products with therapeutic properties are better known as functional foods. One of the functional foods is food that contains probiotics, namely live microbes which when consumed will have a therapeutic effect on the body by improving the balance of microflora in the digestive tract. Other functional foods are foods that contain "prebiotics" namely food components that cannot be hydrolyzed by digestive enzymes in the human digestive tract but these components can benefit the body by stimulating the growth or activity of a number of bacteria such as LAB, *Bifidobacterium*, *Enterococcus*, *Bacteroides* and *Eubacterium* in the large intestine which in turn can improve the health of the body.

In Indonesia, there are several traditional foods, one of which has the potential as a functional food to prevent cancer is "curd". Dadiah is a traditional food for the people of West Sumatra which comes from natural fermentation of buffalo milk in bamboo tubes by microorganisms that produce lactic acid which is naturally found in buffalo milk. In rural communities, Dadiah is often consumed directly or as a side dish. As explained above, fermented milk has been shown to prevent cancer and reduce cholesterol. Through a natural fermentation process by lactic acid-producing microorganisms, the buffalo milk in the bamboo tube is naturally broken down into lumps or solids that are useful as probiotic food that is useful for the body. The function of this probiotic food is to restore and repair damaged body tissues.

Recent research on curd leads to the following objectives; To find out how to make fermentation properly, to know how to make the right curd even though it's traditional, and to find out what bacteria play a role in making curd that can make milk curdle or coagulate. According to Chalid et al (2013) that curd research that has are being developed about the typical Lactic Acid Bacteria (LAB), namely the *Lactobacillus plantarum* strain which is an indigenous bacteria. Lactic acid bacteria are a group of bacteria capable of converting carbohydrates (glucose) into lactic acid. The bactericidal effect of lactic acid is related to a decrease in the environmental pH to 3 to 4.5 so that the growth of other bacteria including spoilage bacteria will be inhibited (Fardoaz, 1992). In general, microorganisms can grow in the pH range of 6-8 (Buckle et al., 1987). The use of LAB by humans has been carried out for a long time, namely for the process of fermenting food. LAB is a large group of beneficial bacteria that have

relatively the same characteristics. Currently LAB is used for preserving and improving the texture and taste of foodstuffs (Kuswanto and Slamet, 1988). LAB is able to produce lactic acid as the final product of carbohydrate degradation, hydrogen peroxide, and bacteriocins (Afrianto, et al., 2006). The effectiveness of LAB in inhibiting bacterial spoilage is influenced by LAB density, LAB strain, and media composition (Gaman and Sherrington, 1992).

The results of other studies show that, Dadiah as a fermented food typical of Indonesia has the potential to be developed and popularized by replacing buffalo milk with cow's milk using a bacterial starter, namely *Lactobacillus plantarum* from curd from buffalo milk (Sunarlim, 2009). Microorganisms used are cultures of *Lactobacillus acidophilus* bacteria. (Anonymous, 2013). According to Sugitha et al (2011) that the species chosen to be the curd starter were *Lactobacillus paracasei* ssp *paracasei* 1 SKG 44 and *Lactobacillus rhamnosus* SKG 15a1. The use of *Lactobacillus rhamnosus* SKG 15a1 as a curd starter produced better curd with a total acidity of 1.12%, a total LAB colony of 1.2×10^8 cfu/g and a viscosity of 7.24 cP. Meanwhile, of the 5 LAB isolates with the highest antibacterial activity, 3 species were identified, namely *Lactobacillus rhamnosus*, *Lactobacillus paracasei* ssp *paracasei* 1 and *Lactobacillus paracasei* ssp *paracasei* 2. The results of this study are in accordance with Surono's (2004) statement that the three species are LAB species. commonly found in milk.

Judging from the chemical composition and nutritional value, Dadiah is a high source of protein, which is around 39.8% where the protein is classified as a complete protein containing almost all types of essential amino acids for growth purposes. In addition, curd contains relatively high amounts of calcium where this mineral plays a very important role in the growth and formation of bones and teeth and prevents bone loss (osteoporosis) in adults/elderly. Also several types of vitamins, especially vitamin B complex which is a component of milk itself and vitamins B and K which are formed during the fermentation process (Surono & Hosono 1995).

As a traditional fermented food, the main microbes involved during the curd fermentation process are lactic acid bacteria. The results of microbiological analysis of several types of LAB include the genus *Lactobacillus*, *Streptococcus*, *Lactococcus* (Hosono et al, 1989; Surono and Conscience, 2001). In addition, non-lactic acid bacteria were also found, namely *Micrococcus varians*, *Bacillus cereus* and *Staphylococcus saprophyticus* and yeasts, namely *Endomyces lactis* (Hosono et al, 1989). Rusfidra, (2006) in Yudoamijoyo (1983) states that curd contains the following nutrients: water content (84.35%), protein (5.93%), fat (5.42%), carbohydrates (3.34%). The acidity (pH) of curd is 3.4. In the curd, 36 strains of lactic acid-forming bacteria have been isolated and identified. Curd is also antimutagenic to mutagens that arise due to heating food at high temperatures, for example in shrimp paste (Surono & Hosono 1996) and tauco (Usman & Hosono 2003) which are heated at temperatures of more than 1000C for more than 1 hour. bind mutagens and carcinogens in the digestive tract, especially in the small intestine and colon.

According to Winarno (2004), the fermentation process is to increase the number of microbes and activate their metabolism in food. He added that fermentation products such as acid can prevent the growth of toxic bacteria which at an acidic pH (below 4.6) cannot grow and form toxins. According to Buckle et al. (1987), of the organisms that ferment foodstuffs the most important are lactic acid-forming bacteria. Physical and chemical changes after fermentation will change the appearance, shape and flavor of the original ingredients which can improve the nutrition of the product. According to Rachman (1989), fermentation is the activity of microorganisms in producing the energy needed for anaerobic metabolism of organic compounds.

Winarno (2004) explains that fermented milk has several advantages, namely: 1) It is easier to absorb, due to protein degradation into simpler proteins (amino acids are formed) which are directly absorbed and utilized according to their function. 2) It can be consumed by people who are lactose intolerant, because lactose is fermented into lactic acid. According to Buckle et al. (1987) in the milk fermentation reaction, the most important bacteria are lactic acid bacteria which are divided into two groups, namely: 1) Homofermentative capable of producing lactic acid from sugar metabolism. 2) Heterofermentatif produces carbon dioxide and a small amount of other volatile acids, alcohols and esters in addition to lactic acid.

The curd starter in this study was a dry curd starter. The starter is made in dry form with the aim of simplifying handling and avoiding contamination. Surono (2004) stated that the use of dry starter aims to reduce the work of maintaining culture as in liquid culture. Making dry starter in this study using cornstarch as a filler and dried using vacuum drying. The use of cornstarch as a filler refers to previous studies conducted by Sugitha, et al. (2006) explained that LAB converts lactose into lactic acid. Lactic acid bacteria (LAB) contained in curd can produce lactic acid which can inhibit the growth of harmful microbes, in addition to nisin as a by-product is a natural antibiotic to prevent or cure cancer and neutralize disturbing bacteria in the digestive tract. This shows that curd can be classified as a probiotic food product because it is a fermented product and contains lactic acid bacteria.

The bacteria found in curd are *Streptococcus lactis*, *Lactobacillus acidophilus*, *Lactobacillus bulgaricus*. Lactic acid bacteria (LAB) are a general term to describe bacteria that ferment lactose and produce lactic acid as its main

product. These bacteria have long been consumed and are known to bring beneficial effects to the human body. Some lactic acid bacteria isolated from Dadiah (Hosono et al, 1989; Surono & Conscience 2001) are presented in Table 1.

TABLE 1. Lactic acid bacteria isolated from curd

Genus	Species
<i>Lactobacillus</i>	<i>L. Brevis</i> , <i>L. casei</i> subsp. <i>casei</i> , <i>L. casei</i> subsp. <i>rhamnosus</i>
<i>Streptococcus</i>	<i>Streptococcus S. faecalis</i> subsp. <i>liquefaciens</i>
<i>Leuconostoc</i>	<i>L. mesentroides</i>
<i>Lactococcus</i>	<i>L. lactis</i> subsp. <i>lactis</i> , <i>L. lactis</i> subsp. <i>cremoris</i> , <i>L. casei</i> subsp. <i>diacetylactis</i>

In the manufacture of this curd is done by several treatments, the first treatment, a bamboo container plus 250 ml of milk. Second, the bamboo tube is added with 250 ml of milk that has been heated at 40°C. Third, a glass container with 250 ml of milk added (for control. Fourth, a glass container with 250 ml of milk heated at 40°C. Fifth, a glass container with whipped milk added and then put into bamboo. After some of these treatments, the milk was added). fermented for + 2 days, as given in Table 2.

TABLE 2. Some treatments in the process of making curd

No	Treatment	Condition of Treatment		
		Medium	Volume of Milk (mL)	Temperature (°C)
1	First	Bamboo	250	room
2	Second	Bamboo	250	40
3	Third	Glass	250	room
4	Fourth	Glass	250	40
5	Fifth	Glass	250, shaken	room

The appearance of dadiah in the ripening or fermentation process and suggestions for its presentation are presented in Fig. 1, while the results of the treatment of dadiah can be seen in table 3.



FIGURE 1. Cured dadiah in bamboo, and suggestions for serving

Dadiah is a pure milk product that is processed by storing it in bamboo. This is supported by Sunarlim (2009) that Dadiah comes from pure milk, the processing method is very simple. Milk is stored in bamboo segments for + 24 hours to 2-3 days so that spontaneous fermentation occurs. The use of curd in general is as a side dish, side dish, complementary to traditional ceremonies, and as traditional medicine. Dadiah is not much different from yogurt and kefir, which are dairy products that utilize the fermentation process. The bacteria used for fermentation of curd also vary, including according to Chalid et al (2013) that research on curd that has been and is being developed on the typical Lactic Acid Bacteria (LAB), namely the *Lactobacillus plantarum* strain which is an indigenous bacterium, is strengthened by the statement of Sunarlim (2009). Dadiah as a fermented food typical of Indonesia using a bacterial starter, namely *Lactobacillus plantarum* from curd from buffalo milk. In addition to *Lactobacillus plantarum*, other bacteria that can be used as starters are *Lactobacillus acidophilus*, *Lactobacillus paracasei* and *Lactobacillus*

rhamnosus according to the statement of Sugitha et al (2011) that the species selected as starter curd are *Lactobacillus paracasei* and *Lactobacillus rhamnosus*, the three species are LAB species that are commonly found on milk.

TABLE 3. Results of research on making curd

No	Treatment	Aroma	Taste	Texture
1	First	The smell of stale milk there is a bamboo smell	a slightly bitter taste	liquid
2	Second	Like the smell of sour tape	acid	Soft / thick
3	Third	Sour smell like sour tofu	acid	Soft / thick
4	Fourth	stale smell	fresh	Soft / thick
5	Fifth	stale smell	Fresh and slightly bitter	Soft / thick

Traditionally made curd fermentation involves various types of microorganisms interacting with each other. Microorganisms that play a role in this fermentation process are thought to come from the inner surface of the bamboo tube, the surface of the leaf cover, and from the buffalo milk used. These microorganisms consist of bacteria and yeasts with the number of bacteria around 10⁶-10⁷ and yeasts around 10⁵ (Taufik, 2004). Dadiah is formed due to the clumping process of buffalo milk caused by the presence of acids produced from changes in carbohydrates in buffalo milk by certain microbes (Asria, 1986). It can be concluded that Dadiah is an original food ingredient for the people of West Sumatra which is rich in nutrients and beneficial for health, including as a source of probiotics. Dadiah contains probiotic lactic acid bacteria so it has the opportunity to be developed as a functional food. To expand the consumption of curd and to be able to compete with other fermented milk products, it is necessary to improve production technology, both in terms of raw materials, product quality, as well as good and attractive presentation. In terms of functional value, technology is needed to increase the health benefits of curd, and study its functional value (in vitro and in vivo). From the economic and cultural perspective, it is necessary to study the economic feasibility related to its functional value for health and its sociocultural function in the community, especially in West Sumatra. Based on the value of the benefits of curd as a functional food native to West Sumatra, the production technology of curd needs to be improved to improve product quality so that it is more competitive and increases its economic value and socio-cultural role.

In connection with the study from the ethnoscience aspect, the next step needed is how we as educators can transform this knowledge. What was previously the skill of making curd is only a skill that is passed down from generation to generation without any element of science, has become a knowledge package that contains scientific information, which we can convey in learning science or science, especially chemistry, in schools or equivalent educational institutions. The concepts of making Dadiah, which is a typical culinary in the Minangkabau area, can be used as learning resources in science learning. This will make students more familiar with community activities that have been carried out for generations which are part of the tradition in the life of the local community. And more importantly, by knowing this, students will be more appreciative of cultural values which are a source of local cultural wisdom. And furthermore, that the ethnoscience learning process is later expected to grow new characters both in thinking and in the lives of students themselves. Several scientific transformations in the manufacture of curd are presented in table 4.

Making Dadiah or Dadiah, which is one of the local wisdoms of the people in West Sumatra Province or more popular in the Minangkabau area, can be used as a science learning resource. The description of the process of making curd at a later stage, if it is associated with the basic competencies in science subjects, will be able to help and facilitate the tasks of teachers in schools, especially in describing or explaining the relationship between the concept of science and the process of making curd, as a special culinary that delicious, and very good for health from Minangkabau. With the relationship between basic competencies and components in the process of making curd, this will be a contextual learning resource for students.

No less important is that the concepts of making Dadiah, which is a typical culinary originating from the Minangkabau land, will make students more familiar with community activities that have been carried out for generations which are part of the traditions in the local community and local culture. Therefore, it is hoped that students, as the nation's young generation, will be able to appreciate cultural values which are a source of local wisdom and are expected to grow new characters in the patterns of thinking and students' lives.

TABLE 4. Transformation of “dadiah” from indigenous knowledge to scientific knowledge

No	Stages	Community Science	Scientific information
1	Selection of pure cow's milk	Because it is easy to obtain, it is a tradition	Pure cow's milk is the best cow's milk which contains prebiotic bacteria, namely lactobacilli, which when fermented will produce lactic acid. The original natural lactic acid bacteria found in curd can come from bamboo tubes, cow's milk, or banana leaves. Several studies on the probiotic properties of the original strain isolated from Dadiah were found to exhibit antimutagenic and antipathogenic properties, as well as acid and bile tolerance. Natural and wild strains isolated from cow's milk Dadiah exhibit inhibitory, competitive, and repellent properties against pathogens.
2	Selection of the container, in the form of a bamboo tube wrapped in banana leaves	Because it is practical and easy to obtain	The original natural lactic acid bacteria found in dadiah can come from bamboo tubes, cow's milk, or banana leaves. This means that if a bamboo and banana leaf container is used, it is more likely to get lactobacilli, as well as lactic acid.
3	Adding a little	To make it savory	The addition of salt serves to add flavor to help lower the pH so that spoilage microbes are difficult to grow while lactic acid bacteria can grow well. Lactic acid bacteria are a starter to extend the life of fermented products. Salt has the function of forming texture and controlling the growth of the desired microorganisms and inhibiting the growth of spoilage and pathogenic microorganisms.
4	Ripening	Let it become curd	Fermentation in pure cow's milk is a process of breaking down the protein in the milk itself. The aroma that arises from this milk, then, is caused by the results of volatile compounds from the breakdown of proteins.
5	Curing time 1-3 days	Due to mere habit	The longer the fermentation, the more maximal the process of breaking down protein into amino acids will be
6	Ripening conditions that are not in direct sunlight	It has been a long time since	Direct sunlight causes interactions between UV rays and proteins and other ingredients in milk. As a result, it will interfere with the fermentation process, so it will also affect the quality and taste of the resulting curd.
7	Good curd taste	Adhering to a predetermined composition	The good curd taste is made possible by the decomposition of protein, which produces amino acids. Among the amino acids produced are glutamic acid and aspartic acid, glutamic acid plays an important role in flavor formation. The glutamate ion present in glutamic acid can stimulate the nerves in the human tongue.

CONCLUSION

Dadiah is an original food ingredient for the people of West Sumatra which is rich in nutrients and beneficial for health, including as a source of probiotics. Dadiah contains probiotic lactic acid bacteria so it has the opportunity to be developed as a functional food. To expand the consumption of curd and to be able to compete with other fermented milk products, it is necessary to improve production technology, both in terms of raw materials, product quality, as well as good and attractive presentation. In terms of functional value, technology is needed to increase the health benefits of curd, and study its functional value (in vitro and in vivo). From the economic and cultural perspective, it is necessary to study the economic feasibility related to its functional value for health and its sociocultural function in the community, especially in West Sumatra. On the other hand, the Dadiah processing process, which is one of the local wisdoms of the Minangkabau community, can be used as a science learning resource. The description of the process of making curd, if it is associated with the basic competencies in science subjects, will be able to help and facilitate the tasks of teachers in schools, especially in ethnoscience-based science learning. And what is no less important is that with the implementation of this, it is hoped that students will be able

to appreciate the cultural values that are the source of local wisdom in their area, so that they can grow new characters in the patterns of thinking and student life, as the younger generation who succeeds in their ideals. future aspirations of the nation.

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