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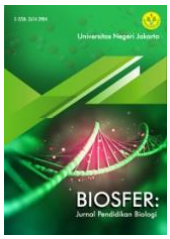

Ethnoscience study to convert kerinci community knowledge in the processing of kawa drinks

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ABSTRACT

The district's traditional drink, kawa drink, made from dried coffee leaves, is used by the Kerinci people. The primary purpose of this investigation is to use ethnoscientific research to turn common knowledge about the techniques used in processing kawa drinks into scientific knowledge. This study employs a qualitative, ethnoscientific phenomenological methodology that includes observation, which involves learning where to gather the coffee leaves that will be used to make kawa drinks in the step one. The finding out how to turn coffee leaves into kawa drinks was the second step of the interview. The third step involves documenting several steps in the processing of coffee leaves into kawa drinks and the data must then be subjected to a descriptive qualitative analysis as the final step. The Miles-Huberman approach for data analysis includes data reduction, data presentation, conclusion-drawing, and verification. The study's results show that while the process of transforming kawa drinks into traditional drinks is a local tradition that has developed over the years, the tradition of drinking kawa has not changed since the transformation of local knowledge. The six steps make up the process of converting coffee leaves into kawa drinks: leaves collection, drying, smoke of kawa leaves, packaging, dissolving, and serving drinks. The tradition of making and consuming kawa drinks in Ujung Pasir Kerinci Village has the potential to serve as a source of community knowledge to convert of tradition into scientific science.

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INTRODUCTION

The coffee plant (*Coffea spp*) is considered to be the inexhaustible source of the drink of the gods (Bahar et al, 2017), and has been extensively used, both as a drink and as a component of food and snacks, despite the fact that the coffee that now flourishes in Indonesia was not initially indigenous to the country (Gumulya and Helmi, 2017). In actuality, there has been a change in the way coffee is consumed. Coffee drinking in some urban communities has advanced into a way of life that involves consideration of prestige in addition to meeting basic needs (Solikatun et al, 2015). The influence of lifestyles and the rise of cafes and coffee shops have contributed to an increase in the number of coffee consumers (Liveina & Artini, 2014).

The coffee plant has unique characteristics since both the leaves and the coffee beans can be used to make drinks (Lestari & Natalia, 2019; Kayaputri et al, 2022; Lazuardina et al, 2022). In addition to being known in West Sumatra as Aia Kawa or kawa daun (Coffeland Indonesia, 2018), the invention of the fragrant and delectable taste of coffee in making a drink by brewing the leaves (kawa daun) has also become a tradition for the people of Kerinci as Kawa drinks, especially farmers before engaging in daily farming activities. Kawa drink is a drink made from dried coffee leaves that has been brewed to a color that is darker than tea (Novita, Kasim, and Anggraini et al., 2018; A'yunillah & Suharso, 2016). The Dutch carried out forced planting, which is when the drink kawa (kawa daun) first originated. At the time, coffee prices in Europe were skyrocketing, so all the coffee beans had to be given to the colonizers, leaving the natives with only the leaves, which they subsequently turned into a drink. (Ntonk, 2013).

From preliminary observations, it is known that Kerinci people from Mount Kerinci District and Siulak District) to the Lake Kerinci District have adopted the kawa drink culture (Lake Kerinci District and Sitinjau Laut District). Before Dutch colonialism, the Kerinci people, especially in Ujung Pasir Village, Lake Kerinci District, used coffee leaves to make kawa drinks. 60% of people of Ujung Pasir Village drink kawa beverages before engaging in morning activities and relaxing in the afternoon and nighttime (Bahar et al, 2017). Utilizing coffee leaves that are not too old is a way to create kawa drinks that taste good. By analyzing the leaf's shape and color, the community chooses which coffee leaves to use. Older leaves will have a rough texture, a dark color, and a bad flavor, like a bitter taste. According to Putriana et al. (2017), as coffee leaves get older, their tannic content rises and their flavor becomes more bitter. The similar idea was also put up by Yuwono (2019), who stated that whereas young coffee leaf tea is dominated by a fresh taste, elderly coffee leaf tea is dominated by a bitter taste.

For one liter of kawa drink, 50 grams of coffee leaves are needed. Unlike to tea leaves, which are typically dried in the sun, oven, or wind, coffee leaves are not typically dried in these ways. Because it will give the coffee a bitter flavor, coffee leaves shouldn't be dried directly over a fireplace (Fitriany, 2019). Before serving, the kawa drink's flavor is radically altered by the coffee leaves' drying (Rahmadhani, 2017). The community benefits from the preservation of natural resources by drinking coffee leaves. It is essential to carry out the knowledge inheritance (transformation) in order to ensure the longevity of the kawa drinking culture. The stages of ethnoscience can be used to carry out the transformation process.

The process of converting original science (knowledge that emerges in society) into scientific science is known as ethnoscience (Rahayu & Sudarmin, 2015). One way to instill and transmit cultural values is through the production of kawa beverages in society. Consequently, it is crucial for study to track down or explore local culture or indigenous knowledge of a society (Hadi & Ahied, 2017). This may serve as a resource for learning based on local knowledge (Oktavianti & Ratnasari, 2018; Adinugraha, 2018). It encompasses not only using plants for food, clothing, and shelter but also for religious rituals, decorations, and health care (Meena & Meena, 2018).

As the community's traditional knowledge has not been institutionalized through textual, contextual, or scientific conceptualization, it is crucial to reconstruct it into scientific knowledge (Sudarmin & Asyhar, 2012). Given that Indonesia is made up of many different ethnic groups and civilizations, studying ethnoscience is crucial since it helps identify the traits of a region that should be conserved (Nuroso & Sudarmin, 2018; Ilhami, et al, 2020.). In order to complete one type of training in ethnoscience, one must possess the capacity to fuse original knowledge with scientific information. Prioritizing a system that is distinguished by the distinctive knowledge of a community is the fundamental objective (Kencanawati & Angela, 2022; Parmin & Fibriana, 2019).

The purpose of this research is to find out the community's original knowledge in the process of processing coffee leaves into kawa drinks for consume continued have done when they are going to work in the fields, when they are relaxing and speaking with their families in the afternoon, evening and when there are traditional festivities in Kerinci, particularly in Ujung Pasir village. The community's original knowledge in processing coffea leaves into kawa drinks consist of 6 stages starting from choosing and collection of leaves, drying, smoke of kawa leaves, packaging, dissolving and serving drinks. This stages will be in used community knowledge recontruction convert to scientific science

METHODS

Research Design

This research adopted a phenomenological methodology and an ethnoscientific descriptive qualitative approach (Creswell, 2018). This method focuses on the problems as they were at the time the research was done, processing and analyzing the research's findings to make conclusions. Purposive sampling is the method used in sample selection. Sampling with consideration is a sample approach that uses certain considerations after learning about the population's characteristics. Direct observation of population activity in the study area served as the technique to collect data. Semi-structured interviews with citizen informants were also conducted as part of the data collection process. Documentation, interviews, and observation are used to collect data. Direct observation of the making of kawa drinks in the research location in Ujung Pasir village served as the basis for observation activities. The purpose of the interview was to learn more about Ujung Pasir village's kawa drinking traditions. Photos and videos of community activities in processing coffee leaves into kawa drinks provided as documentation. Traditional leaders, the village government, and the community served as the responders in order to gather in-depth data regarding the consumption of kawa as well as the method utilized to prepare it as a traditional drink for the Kerinci people. In the village of Ujung Pasir, the process of reconstructing indigenous local knowledge is centered on building community trust and the method for turning coffee leaves into kawa drinks. The Miles-Huberman model, which includes data reduction, data presentation, drawing conclusions, and verification, is used in data analysis.

Population and Samples

The community of Ujung Pasir Kerinci provided as the location of this research. The community of Ujung Pasir was chosen as the study's focus because it had a large population of informants who were familiar with the process of turning coffee leaves into kawa drinks. In this study, 46 qualified informants who comprehend how to produce kawa drinks were purposefully chosen as informants.
Determination of informants in research conducted with purposive techniques include farmers, community leaders and traditional leaders who are directly involved in the processing and consumption of kawa drinks. In this research that becomes main instrument (key instrument) is the researcher himself functioning establish the focus of research, choose informants as data sources, perform data collection, assess data quality, data analysis, interpret data and create conclusion on the findings (Sugiyono, 2014).

Instrument

This study conducted semi-structured interviews with informants from residents around Ujung Pasir Village. This interview was conducted to gather information regarding the processing of coffee leaves into kawa drinks. The process begins with the selection of leaves used in making kawa drinks to the processing and presentation techniques. The research interview instrument is described in Table 1.

Procedure

There are 4 steps in the processing of coffee leaves for kawa drinks for the people of Ujung Pasir Village. The first step is observation, which involves learning where to gather the coffee leaves that will be used to make kawa drinks. Finding out how to turn coffee leaves into kawa drinks was the second stage of the interview. The third stage involves documenting several steps in the processing of

coffee leaves into kawa drinks. The fourth step is to perform a descriptive qualitative analysis of the data.

Table 1.
Interview Instruments

Number	Question item
1.	What do you experience in drinking kawa drink?
2.	When did you begin drinking kawa drink?
3.	What steps are taken in the manufacturing of kawa drinks from coffee leaves?
4.	How are coffee leaves selected to be made into kawa drinks?
5.	What are the benefits of drying coffee leaves before making kawa drinks?
6.	What does function smoke of leave does serve before coffee leaves are turned into kawa drinks?
7.	How does the brewing process for kawa drink work?
8.	Why do you use coconut shells to offer kawa drink?
9.	What advantages come from drinking kawa drink?
10.	When should you consume kawa drink?

Data Analysis Techniques

The qualitative data analysis was based on an ethnoscience phenomenology investigation of the kawa drink created by the informants (Crabtree & Miller, 2022). Strong information about the activity transformation of the community in processing kawa drink is then derived from the information gathered and the results of direct observations made in the field. Moreover, data are compiled and synthesized in this step, and the outcomes are methodically described using descriptive analysis.

RESULTS AND DISCUSSION

Transform of community knowledge in the processing of kawa drinks

The Kerinci people process coffee leaves as they move from the homecoming region to the downstream in Kerinci Regency, and this process results in coffee water, which is what is traditionally drunk as aye kawo. Farmers typically use this custom when they are going to work in the fields, when they are relaxing and speaking with their families in the afternoon or evening, and when there are traditional festivities in Kerinci, particularly in Ujung Pasir village as a research venue. Processing coffee leaves into the kawa drink known as aye kawo (leaf coffee) involves several steps. namely: collecting leaves, drying the air, drying the fumigation, packaging, dissolving, and serving.

Indigenous knowledge of the local community (indigenous science) has local wisdom values that are still upheld today, according to the findings of observations, interviews, and recording of the processing of kawa drinks and the ritual of consuming kawa drinks. As shown in Table 2 below, community knowledge can be transformed into scientific knowledge in the following ways:

Table 2
Community Knowledge Reconstruction to Scientific Science

Community Knowledge	Scientific Science
The community has the ability to choose and decide whether coffee leaves are suitable for consumption as a drink, such as leaves that are not too old. The community chooses its coffee leaves based on the shape, color, and flavor of the leaves.	The sensory characteristics of sweet flavor, sour taste, bitter taste, sweet taste, wood taste, and earthy taste are significantly influenced by leaf age (Chen, 2019; Fibrianto et al. (2019).
The community is aware of the potential effects of unproductive shoots and branches on coffee plant growth and nutritional balance.	In an effort to lower the risk of disease attack, leaves are removed from unproductive branches and shoots. Unproductive branch development will result in fungal growth on coffee plant leaves, which will lead to the illness known as leaf rust (Abu et al. (2019); Sianturi & Wachjar (2016).
The coffee leaves are dried by the community in	The purpose of the first drying step is to get the water

two phases. 1. With an average temperature of 310C, the kitchen roof and heat from the smoke in the kitchen provide the first stage of drying. The leaves were dried until their structure changed, becoming drier or withering until they felt light for six days. 2. Fire, at an average distance of 30 cm and an average temperature of 48–500°C, is the source of the second stage of drying. With an average drying duration of 20 minutes, this process is carefully done to prevent the coffee leaves from being overripe.	content of the coffee leaves down to 61.69% (Ding et al. (2022). To ensure that the coffee leaves produce the ideal flavor when brewed, the second stage of the drying process is carried out to make them brown, crispy, and fragrant (Ding et al. (2022); Siringoringo et al. (2012).
The community does the packaging by tearing apart the coffee leaves, which are entirely dry and devoid of water content, and placing them in plastic bags. Dry coffee beans can also be packaged by being placed in plastic-wrapped baskets. This procedure is done to ensure that the kawa drink's quality and safety for consumption.	Packaging is useful for preventing changes in moisture content, oxidation, respiration, and the loss of scent so that the material will last longer in storage or have a longer shelf life (Awulachew, 2022; Bahar et al. (2017).
In the process of dissolving the coffee, the community simply puts hot, boiling water into a kettle or pot that already contains dry coffee beans.	Hot water that has been boiled will hydrolyze the tannin in dry coffee leaves, reducing the amount of tannin that gives kawa beverages their flavor and scent (Rafifah, 2022).
As an alternative to glass, some utilize coconut shells. When compared to regular glass, coconut shells offer a more delectable flavor since they lessen the bitterness.	The cellulose, hemicellulose, and lignin found in coconut shells help to balance the bitter flavor of brewed coffee leaves (Lestari & Natalia, 2019; Campa et al. (2012).
The tradition of drinking kawa (Aye kawo) is thought to have various health benefits, particularly enhancing stamina, bodily freshness, bone strength, and preventing diabetes, cancer, and stress.	Coffee leaves contain flavonoids, alkaloids, saponins, caffeine, and polyphenols, which are valuable as natural anti-inflammatory and anti-cancer substances for the fortification of food products that are advantageous to the body's health as a source of antioxidants (Pristiana et al. (2017).

Based on Table 2, local knowledge of how to make kawa (Aye Kawo) drinks from coffee leaves is transformed into scientific information, showing that this knowledge has been passed down from generation to generation, especially among the residents of Ujung Pasir Village. By translating local knowledge into scientific conceptions, Arifin (2019) and Hadi et al. (2017) investigate how local information becomes scientific knowledge. Particularly in the process of turning coffee leaves into drinks that the general public may consume and are labeled as effective drinks for the treatment of various ailments, community knowledge that is translated into scientific information can be used as a source of learning for the community (Campa et al, 2012; Chen et al, 2018; Permata et al, 2020).
Figure 1 shows community knowledge and experience with the six steps involved in turning coffee leaves into kawa drinks. Figure 1 illustrates how coffee leaves are chosen for leaf collecting by examining their size, shape, and color. The leaves are from shoots (unproductive twigs/shoots) since they will compete with coffee cherries for nutrients and hinder their growth (Sianturi, 2016). Air drying and fumigation drying are the two processes of coffee leaf drying. To make the furmigation drying process easier and quicker, coffee leaves are first step dried (by air) to lower their water content (second step drying). Coffee leaves receive heat from the hot air during the initial drying step, which causes water to evaporate from the leaves. Further flow in the drying area will improve drying (Eviza et al. 2019). To achieve a brownish hue in the leaves, fumigation drying (second stage drying) is done until all of the water content has been consumed. both crisp and fragrant. To remove chemical water from coffee leaves, which causes them to appear dry and release a characteristic aroma, and allow them to be utilized as both a drink, fumigation is done.

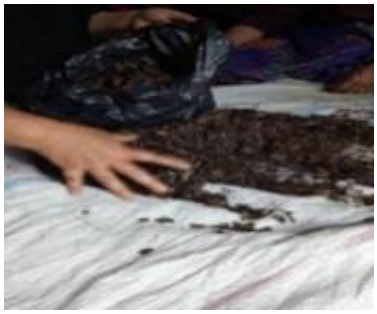
Dry coffees are packaged in a plastic bag. Dry coffee beans can also be packaged by being placed in plastic-wrapped baskets. This procedure is carried out to ensure that coffee leaves are packaged or stored in a way that prevents them from quickly becoming moist and susceptible to

damage, maintains their quality, and makes it safe to use in beverages (Putriana et al, 2017). In order to increase the shelf life of commodities in storage, packaging is anticipated to avoid changes in moisture content, oxidation, respiration, slow down the loss of scent, and other processes. Black tea and green tea packaged in plastic sacks had more water than teas packaged in paper sacks and transparent plastic packaging, both stored at 30°C and 10°C (Arizka et al, 2015).

a. Collection of leaves

b. Drying

c. Smoke of Kawa Leaves



d. Packaging

e. Dissolving

f. Serving Drinks

Figure 1. Processing Steps for Kawa Drinks

Coffee leaves are dissolved by adding boiling hot water right into the kettle or saucepan that contains the dried coffee beans. The kawa drink will gain flavor and aroma from the heating water. The tannin concentration of the dry coffee leaves affects the kawa beverage's bitter flavor. Putriana et al. (2017) claim that the hydrolysis of the tannins in dry coffee leaves by boiling hot water will result in a reduction in the tannin content. Coconut shells are used in place of glass by people. Because utilizing the coconut shell will lessen the bitter taste, it will provide a different and pleasant flavor than using a regular glass. In addition to cellulose, hemicellulose, and lignin, the chemical makeup of coconut shell also includes carbon, oxygen, silicon, potassium, sulfur, and phosphorus (Tamado et al. 2013).

CONCLUSION

The six steps are involved in turning kawa leaves into kawa drinks: gathering the leaves, drying, smoke of leave, packaging, dissolving, and serving. The translation of people's wisdom into the preparation of kawa beverages from coffee leaves is something that happens from generation to generation. Using the steps of the scientific method, this reconstruction of community knowledge can become scientific knowledge.

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