

## Research Article

# Wine Coffee as an Edu-tourism in Banyuwangi: An Organoleptic Test

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## Abstract.

Banyuwangi is one of the districts where the plantation sector with coffee supports economic activities as the main commodity. Coffee productivity in Banyuwangi is included in the top five categories in East Java Province, and its production has been exported to various countries. The coffee-producing center in Banyuwangi is in Kalipuro District, precisely in Gombengsari. This area is famous for its coffee production with Robusta coffee. The coffee processing process in Gombengsari is limited to coffee beans which are converted into powder or sold in the form of drinks. This research aims to determine the level of preference and organoleptic tests for fermented coffee, commonly known as wine coffee, and to determine the caffeine content in it. Based on laboratory test results, the coffee wine content is  $1.1066 \pm 0.0102\%$ . The test result is lower compared to the caffeine content in regular coffee of  $1,1843 \pm 0.0468\%$ . The preference test of 40 untrained panelists resulted in 72.5% of panelists liking pure wine coffee and 75% liking wine coffee with added sugar. Meanwhile, the results of organoleptic test for pure wine coffee showed that the hedonic aroma test was the most preferred for wine coffee with the addition of sugar. The results were obtained for the best scores in the aroma, taste, sweetness level, and liking level tests.

**Keywords:** Banyuwangi, coffee, coffee wine, edu-tourism

## 1. Introduction

Banyuwangi is one of the districts in East Java which economic sector is supported by the plantation sector. One of the commodities produced is coffee. Coffee productivity in Banyuwangi is among the top five in East Java Province and its production has been exported to various countries [1]. However, on average, coffee processing in Banyuwangi is still limited to coffee beans which are processed into powder or drinks. The largest distribution of coffee producing areas in Banyuwangi is in Kalipuro District. This area is a center for producing Robusta Coffee (*Coffea Cenephora*) especially in Lerek, Gombengsari area. Besides, this area is also a tourist destination which is packaged in the form of Lerek Gombengsari Coffee Tourism Village (Lego) Agrotourism.

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The Minister of Agriculture stated that regions in Indonesia have great potential to develop agrotourism, one of which is coffee agrotourism [2]. Apart from that, the 2021-2026 Banyuwangi RPJMD makes coffee as a superior product in the plantation sector, so that, many Banyuwangi festivals are held with a coffee theme.

The development of coffee processing in Lego Coffee Tourism Village has only been utilized to the extent of coffee beans which are processed into coffee powder and enjoyed by drinking. Meanwhile, the process of processing coffee into drinks is now increasingly diverse with the aim of meeting consumer demand. This requires innovation in coffee processing, especially to eliminate the bitter taste in coffee so that coffee drinks are safe for consumption by all groups. This innovation can be done through a coffee fermentation process known as coffee wine. According to Permana [3], this type of coffee wine does not contain alcohol and is able to provide a different sensation for coffee lovers. Wine coffee is fermented coffee from processing coffee cherries which aims to break the skin with the coffee beans and according to Towaha and Rubiyo [4], this processing process can improve the taste.

The chemical composition of coffee is dominated by water, up to 84.2%. The fruit mucus in coffee beans also consists of 8.9% protein and 4.1% sugar. Meanwhile, the water content in the coffee pulp is 42.6% and has a cellulose content of 27.4%. High water content can help increase the number of beneficial microbes during the fermentation process [3].

The Processing process of coffee berries into wine coffee is an integration between sectors such as plantations, tourism and UMKN (Micro small and Medium Enterprises) which is expected to be able to be an innovation in coffee processing that can be used as an educational tourism attraction and as a souvenir (something to buy) for tourists. This expectation based on the fact that this destination has both domestic and abroad visitors.

## 2. Research Methodology

Data collection in this research consists of two parts, namely data collection at the industry level and data collection at the level of marketing institutions toward coffee and wine consumers. The data needed in this research is primary data and secondary data. Primary data was obtained from distributing questionnaires to untrained panelists and secondary data was obtained from literature studies. The method for determining

respondents in this research was carried out deliberately using a purposive sampling method. The first step to gain the primary data was selecting forty respondents that would become the untrained panelists. The respondent randomly selected by asking the college students attending the class. They were asked to taste two kinds of coffee. The first one is pure wine coffee, and the second one was wine coffee added by sugar. After tasting these two kinds of coffee, they were then being asked to answer some questions on the questionnaire. The questions were about, the taste, the smell, the color, the sweetness level, and they preference toward certain type of coffee served.

### 3. Result and Discussion

Wine coffee is fermented coffee with the aim of reducing the caffeine content in coffee. This coffee is very suitable for coffee lovers who suffer from stomach disorders. Fermentation activities are carried out by storing red cherries in an airtight place for 1 month by opening the lid every 2 weeks. The results of the caffeine content test carried out at the Jember University Laboratory showed that the caffeine content of wine coffee was  $1.1066 \pm 0.0102\%$ . This result has a lower value when compared to the caffeine content in regular coffee of  $1,1843 \pm 0.0468\%$ . Based on these results, it is very relevant if coffee wine is made for a special market segmentation.

Organoleptics is a test of food ingredients based on likes and desires for a product [5]. Organoleptic testing, also known as sensory testing, is a testing method that uses human senses as the main tool for measuring product acceptability. The senses used in organoleptic tests are the sense of sight/eyes, sense of smell/nose, sense of taste/tongue, sense of touch/hands.

In this research, organoleptic tests were carried out on 40 untrained panelists consisting of 55% male respondents and 45% female respondents. Respondent characteristics data shows that on average men have a preference for coffee consumption and are in the age range of 16-25 years. This age range is a productive age and usually does not have a family. So, time spent for hanging out in coffee shops or cafes is very possible. The following are the results of organoleptic tests on samples of pure wine coffee with wine coffee with added sugar.

Based on the Table 1, it was known that there were five variables being observed. First is the smell of the coffee, the second is the taste possessed by the coffee, the third

TABLE 1: The result of organoleptic test toward untrained respondents.

Sample of Pure Wine Coffee		Sample of Wine Coffee added with Sugar	
Hedonic Test	Average Result	Hedonic Test	Average Result
Smell	3	Smell	3
Taste	2	Taste	3
Color	2	Color	2
Preference Level	2	Preference Level	3
Sweetness level	1	Sweetness level	3

is the color of the coffee, the fourth was respondents' preference between these two specimens, and the last is the sweetness level.

Looking at the table presented, it is known that pure wine coffee and those who are added by sugar has the same average score on the smell. It means that there is not enough superiority between these two served coffee even though served with different method. This similarity also happened in color. There is no difference in color for coffee which is added with sugar nor pure whine coffee. Meanwhile, for the taste, and preference level, majority of panelist thought that wine coffee which is added with sugar has better taste compared to another one.

The addition of sweeteners such as white granulated sugar is generally used to sweeten coffee without drastically changing the overall taste. This addition will produce a lighter taste when compared to the addition of other sweeteners. Apart from that, the level of preference of untrained panelists for wine coffee products can be used as a reference that wine coffee can be produced for its own market segment, namely the group of coffee lovers who have stomach problems. Wurgler [6], states that added value is described as the value of delivering producing goods (output) less the cost of intermediate goods and requiring services (but not including hard work), with adjustments.

#### 4. Conclusion

Wine coffee is very suitable to be produced to meet consumer demand in a special segment, namely: coffee lovers with stomach complaints. The results of fermentation have been proven to be able to reduce caffeine levels in coffee which means that the coffee resulted will be friendly for those who have stomach problem because it has lower level of caffeine compared to another. Besides, the result from Organoleptic tests

on untrained panelists showed that wine coffee with added flavors (sugar) was preferred by consumers. This might happen because the sweetness is able to produce a lighter taste when compared to the addition of other sweeteners.

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