

QUALITY CHARACTERISTICS OF ROBUSTA LANANG COFFEE POWDER ON THE SLOPES OF MOUNT IJEN BANYUWANGI

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Abstract

Banyuwangi Regency is one of the Robusta coffee-producing areas in East Java. Coffee for some people in Banyuwangi is a commodity that has been developed for generations. The slopes of Mount Ijen are one of the areas in Banyuwangi Regency. Coffee is grown in the mountainous area of Ijen with an altitude of between 1,000 to 1500 meters above sea level. This environment provides ideal conditions for coffee growth. The quality of coffee is greatly influenced by the variety and altitude of the coffee cultivation site. So the need for research to determine the quality characteristics of robusta lanang coffee powder on the slopes of Mount Ijen, Banyuwangi Regency. Sampling of robusta lanang coffee powder was carried out at 6 points located on the slopes of Mount Ijen, namely Omah Kopi, Kemunir Kopi, Palm Sugar Café, Ijen Slope Coffee, Jotos Coffee, and Steven Coffee. The five samples were then analyzed for moisture content using the thermogravimetric method and the caffeine content of robusta male coffee powder using the UV-Vis spectrophotometry method. Then the brew of male robusta coffee powder was carried out sensory tests on color, taste and aroma using the hedonic test method. The moisture content of male robusta ground coffee on the slopes of Mount Ijen in Licin District, Banyuwangi Regency has met the quality requirements for ground coffee according to SNI. The caffeine content of robusta coffee powder is in accordance with SNI quality requirements. The average panelist liked the color, taste and aroma of brewed robusta lanang coffee powder in Licin District, Banyuwangi Regency

Keywords: Quality Characteristic; Robusta Lanang; Coffee

A. INTRODUCTION

Coffee (*Coffea spp*) is one of the plantation commodities that has a fairly high economic value among other plantation crops and plays an important role as a source of state foreign exchange. The success of coffee agribusiness requires the support of all parties involved in the coffee production process, processing and marketing of coffee commodities. Efforts to improve coffee productivity and quality continue to be carried out so that the competitiveness of coffee in Indonesia can compete in the world market (Rahardjo, 2014). Banyuwangi Regency is one of the Robusta coffee-producing areas in East Java. The area of Robusta coffee plantations in 2012 was around 10,583.15 ha with a production of 5,624.47 tons. This potential needs to be developed in order to improve the welfare of farmers. Improvement of cultivation techniques to marketing must be carried out gradually so that coffee agribusiness in Banyuwangi Regency is profitable.

Coffee for some people in Banyuwangi is a commodity that has been developed for generations. Coffee is managed by hulling. Dry coffee processing by drying whole coffee fruits began to be reduced, and as an alternative is to break the coffee pods using a cneuzer and hammer mill which is then dried on the cement floor. The dissemination of this processing technique is pursued by fostering large plantation groups (government/private) and people's

plantations. The area of large plantations is 5,445.15 ha while the people's plantations cover an area of 5,138 ha, and are concentrated in Kalibaru and Kalipuro Districts. For the people in the two sub-districts, coffee plants are a source of income that supports daily needs. Given the great potential for coffee development in Banyuwangi, coffee farmers need to develop agribusiness-oriented farming. In principle, people's coffee plantations in Banyuwangi can become more enthusiastic with a touch of processing technology and institutional strengthening of farmer groups.

The slopes of Mount Ijen are one of the areas in Banyuwangi Regency. Coffee is grown in the mountainous area of Ijen with an altitude of between 1,000 to 1500 meters above sea level. This environment provides ideal conditions for coffee growth, including nutrient-rich volcanic soils and a supportive climate, which contribute to the quality of the coffee beans. This coffee is known to have a distinctive taste, with nuances of nuts and chocolate, as well as a low level of acidity. The low acidity level makes it more acceptable to various circles, including those who don't really like coffee with a strong acidic taste. Ijen slope coffee has a balanced sour taste with natural sweetness, which appears when brewed. This combination makes it very attractive to coffee lovers. The type of coffee found on the slopes of Mount Ijen is a type of robusta menang coffee. Lanang coffee is one of the most unique types of coffee. Generally, coffee has two beans in one fruit, but for male coffee there is only one. The production of male coffee only ranges from 2-5% of the total production of coffee fruits as a whole. The type of robusta coffee has a higher caffeine content than normal robusta coffee beans. The quality of coffee is greatly influenced by the variety and altitude of the coffee cultivation site. So the need for research to determine the quality characteristics of robusta lanang coffee powder on the slopes of Mount Ijen, Banyuwangi Regency.

B. RESEARCH METHOD

Materials and Tools

The material used in this study is Robusta coffee powder taken from the Robusta coffee powder production industry on the slopes of Mount Ijen, Banyuwangi Regency. The equipment used includes a moisture meter to test the moisture content of ground coffee, and spectrophotometry to measure the caffeine content, as well as sensory test equipment.

Research Procedure

Sampling of robusta lanang coffee powder was carried out at 6 points located on the slopes of Mount Ijen, namely Omah Kopi, Kemunir Kopi, Palm Sugar Café, Ijen Slope Coffee, Jotos Coffee, and Steven Coffe. The five samples were then analyzed for moisture content using the thermogravimetric method and the caffeine content of robusta male coffee powder using the UV-Vis spectrophotometry method. Then the brew of robusta male coffee powder was subjected to sensory tests on color, taste and aroma using the hedonic test method (Stone and Joel, 2012).

C. FINDINGS AND DISCUSSION

Moisture Content of Robusta Lanang Ground Coffee

Moisture content testing is a method to measure the amount of water contained in a material or object. Moisture content tests are important to determine the quality and durability of materials, as well as to ensure proper handling in processing and distribution. One of the important things to do in the process of processing green beans into roasted beans

that have a higher monetary value is to ensure that the water content or moisture content in the coffee beans is at the right number. The moisture content in coffee beans can affect its durability, taste, and selling value. In this blog, we will discuss why measuring the moisture content in coffee beans is important, what is a good moisture content, and how to measure the moisture content in coffee beans.

The water quality of an ingredient needs to be known, because water can affect the taste. The moisture content affects the durability of the material during storage. The water content in the material determines its resistance to the attack of microorganisms. The moisture content in food will change according to the environment, and this is very closely related to the durability of the food (Winarno 2004). The results of the analysis of the moisture content of robusta ground coffee in the robusta ground coffee processing industry on the slopes of Mount Ijen can be seen in Table 1.

Table 1. Average Moisture Content of Robusta Lanang Ground Coffee

Numb	Manufacturer Name	Moisture Content (%)
1	Coffee House	6,5
2	Kemunir Kopi	6,8
3	Palm Sugar Cafe	2,22
4	Ijen Slope Coffee	3,5
5	Jotos Coffee	5,5
6	Steven Coffe	4,10

The high moisture content is influenced by the coffee roasting process in the traditional way is less stable and uncontrollable, so the moisture content of ground coffee produced is still relatively high. Based on Table 1 above, the highest moisture content is in coffee milk, which is 6.8, but the moisture content of ground coffee is still in the good category, because it is less than 7%. The moisture content of ground coffee can also be affected by storage conditions. Coffee stored in the open will absorb moisture and air, so the moisture content will increase.

Caffeine Levels of Robusta Lanang Coffee Powder

Caffeine is a mild stimulant that is often suspected of being the cause of addiction. This addictive effect can only arise if consumed in large quantities and regularly. However, the symptoms of caffeine addiction will disappear in just one or two days after consumption (Maramis et al., 2013). Therefore, it is highly recommended to consume caffeine not exceeding the permissible limit. The FDA (Food Drug Administration) reveals the permissible dose of caffeine is 100-200mg/day, while according to SNI 01-7152-2006 the maximum limit of caffeine in food and beverages is 150 mg/day and 50 mg/serving (Liska, 2004). The results of the analysis of the caffeine content of robusta male coffee powder in Lereang Gunung Ijen can be seen in Table 2.

Table 2. Average Caffeine Levels of Robusta Lanang Coffee Powder

Numb	Manufacturer Name	Caffeine Content (%)
1	Coffee House	2,24
2	Kemunir Kopi	8,0
3	Palm Sugar Cafe	6,02
4	Ijen Slope Coffee	2,66
5	Jotos Coffee	3,90
6	Steven Coffe	3,78

Based on the table above, it can be seen that the caffeine content of robusta lanang coffee powder on the slopes of Mount Ijen is between 2.24 – 8.4. It is known that the quality requirements of SNI 01-3542-2004 ground coffee, the allowable caffeine content is 2 -8 % of the weight of the product. All caffeine levels of robusta coffee powder are in accordance with SNI quality requirements. According to Tjahjani's 2021 research, the safe limit for caffeine consumption that enters the body per day is 100-150 mg. This amount of activity has increased enough for the body to stay awake. A cup of coffee usually contains 50 mg of caffeine, so it is recommended to drink no more than 3 cups of coffee a day. Coffee beans naturally contain caffeine in various levels according to the requirements and growth rate of plants, because caffeine is part of the secondary metabolites produced by plants as a form of self-protection against the environment and competitors (Budi, 2020).

Sensory Color Robusta Lanang Coffee Powder

The results of the sensory analysis of the color of the brew of robusta male coffee powder on the slopes of Mount Ijen can be seen in Table 3 below.

Table 3. Average Sensory Analysis of the Color of Male Robusta Coffee Powder

Numb	Manufacturer Name	Color
1	Coffee House	1,9
2	Kemunir Kopi	1,8
3	Palm Sugar Cafe	2,1
4	Ijen Slope Coffee	2,3
5	Jotos Coffee	2,4
6	Steven Coffe	2,3

Based on Table 3, it is explained that the average analysis of coffee brewing color in the robusta male coffee powder processing industry on the slopes of Mount Ijen is not significantly different. The panelists assessed the color of the robusta ground coffee brew on the robusta ground coffee brewing scale on the suka scale. The panelists assessed the color of the robusta ground coffee brew on the scale of like. The factor that also makes the color of this ground coffee the same is that the raw materials are both red picked, the roasting process is almost the same between the coffee methods and the other. The blackish color of robusta ground coffee is caused by one of them due to the roasting process. The roasting stage also plays a role in the formation of color. According to Hayati et al. (2012), the formation of dynamic color pigments at the time of roasting depends on the gradient/level of

roasting temperature. In addition, the browning reaction due to the chemical reaction between amino acids and reducing sugars (maillard reaction) also affects the color produced by the coffee grounds and added sugars

Sensory Taste of Robusta Lanang Ground Coffee

Coffee flavor appears after a cleaning process and a taste assessment that includes not only how good the coffee is, but also how rich the flavor can be felt (Saleh, 2020). Taste also has a significant impact on consumer preferences, influencing interest in the product being tested. Taste assessment involves the taste senses which include sour, bitter, salty and sweet. The size of the coffee beans has an influence on taste, where smaller coffee beans tend to produce a lower taste due to a faster extraction process (Rahayu, 2023). The results of the sensory analysis of the taste of robusta ground coffee brewing in the robusta ground coffee processing industry on the slopes of Mount Ijen, Banyuwangi can be seen in Table 4

Table 4. Average Sensory Analysis of Brewed Taste of Robusta Lanang Ground Coffee

Numb	Manufacturer Name	Taste
1	Coffee House	1,9
2	Kemunir Kopi	1,95
3	Palm Sugar Cafe	2,1
4	Ijen Slope Coffee	2,4
5	Jotos Coffee	2,25
6	Steven Coffe	2,3

Table 4 explains that the average sensory analysis of the taste of robusta male coffee brewing on the slopes of Mount Ijen Banyuwangi is not significantly different, except for the brewing of male robusta coffee powder. The taste of coffee is influenced by the raw materials and the roasting process. The raw materials used by the robusta ground coffee processing industry in Kepahiang District are both red picks and the processing method is also almost the same between ground coffee and the other. According to Oktadina (2013), the most dominant flavors in coffee drinks are acidity and bitterness. This taste is formed from the non-volatile components in coffee, the acidity obtained from chlorogenic acid and caffeine as components that give the coffee drink a bitter taste. Almost the same as the aroma, the distinctive taste produced in coffee drinks is obtained from the roasting process of coffee beans.

Sensory Aroma of Robusta Lanang Ground Coffee

Results of sensory analysis of the aroma of brewed robusta male coffee powder on the slopes of Mount Ijen, Banyuwangi. Table 5 explains the average in robusta male coffee powder. The panelists rated the aroma of robusta ground coffee brewing on the scale of like. The factor that also makes the aroma of this ground coffee the same is that the raw materials are both red picked, the roasting process is almost the same between the coffee methods and the other. The aroma of robusta coffee powder arises due to the presence of volatile compounds. Volatile compounds from coffee are formed during the roasting process.

Table 5. Average Sensory Analysis of Brewed Taste of Robusta Lanang Ground Coffee

Numb	Manufacturer Name	Aroma
1	Coffee House	2,25
2	Kemunir Kopi	2,40
3	Palm Sugar Cafe	2,10
4	Ijen Slope Coffee	2,15
5	Jotos Coffee	2,25
6	Steven Coffe	2,15

The formation of the distinctive aroma of coffee drinks is due to specific volatile compounds, namely caffeine compounds and other components that form the aroma of coffee (Nopitasari, 2010). Meanwhile, according to Oktadina (2013), the stages of forming a specific aroma of coffee begin since the coffee is given heat treatment during the roasting process and due to the fermentation of coffee beans for a certain time. Roasting is generally carried out using a combination of short time and high temperature. The length and temperature of roasting carried out on the coffee beans determines the level of distinctive aroma in the coffee drink itself. The number of volatile components released by a product is affected by its temperature and natural components.

D. CONCLUSION

The moisture content of male robusta ground coffee on the slopes of Mount Ijen in Licin District, Banyuwangi Regency has met the quality requirements for ground coffee according to SNI. The caffeine content of robusta coffee powder is in accordance with SNI quality requirements. The average panelist liked the color, taste and aroma of brewed robusta laang coffee powder in Licin District, Banyuwangi Regency.

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