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Detection Character Caged Civet of Robusta Coffee Temanggung

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Abstract

The demand for coffee is currently increasing. Apart from health reasons, it is also because of life style or lifestyle. This includes the demand for civet coffee. Increasing demand both from within the country and abroad due to the unique taste. Increasing luwak production can be done by producing coffee using luwak tangkar. In this study, civets were used individually and given coffee once in the afternoon. The rest is given rice, bananas and meat. This study aims to determine the taste of Temanggung civet and natural robusta coffee. This study used 25 untrained panelists. From this research, Robusta Temanggung which was processed using fermented fermented luwak for 12 hours showed sensoryly that untrained panelists could notice a striking difference between the two. The difference lies in the medium body, higher acidity, and lower bitterness in civet coffee.

Keywords: civet coffee, robusta, caged civet coffee, robusta Temanggung

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INTRODUCTION

Coffee is one of the drinks that is widely consumed by people in the world. The level of Indonesian coffee consumption has increased significantly, and in 2020 it will increase to 14%. (Anonymous 1, 2019) Apart from health, increased consumption is due to life style. This is in accordance with data from the Center for Agricultural Data and Information Systems of the Ministry of Agriculture (2019) that Indonesia's coffee consumption grew 8.22% during 2016-2020.

Based on the type, there are 4 types of coffee, Arabica, Robusta, Liberica, and Exelca. Based on data from the Central Statistics Agency (2019), the productivity of robusta coffee is the highest compared to 3 other types of coffee because it is more resistant to pests and easier to grow. The trend of consumption also shows the same data, namely the level of robusta consumption is higher than the other 3 coffees because the price is more affordable and is used as a mixture of milk coffee.

Based on the process, there are various post-harvest coffee processes including natural, semi wash, full wash, honey, wine and luwak. Luwak coffee is a prestigious coffee because the price is the highest among other processes. The aspect of taste is one of the determinants of this coffee that coffee lovers are interested in. In addition, civet coffee is also safer for health, seen from the insignificant increase in stomach acid (Ikhwan, 2013).

Robusta luwak is an alternative choice for coffee connoisseurs who want to enjoy civet coffee at a relatively affordable price compared to civet arabica coffee. In addition, robusta has higher chlorogenic compounds than arabica. According to Farhaty and Muchtaridi (2020), this chlorogenic compound has hepatitis B antiviral, antioxidant, antihypertensive, antidiabetic, and hepatoprotective.

Civet coffee is coffee obtained from ripe coffee cherries that have passed through the digestive tract of civet animals (Parados hermaphroditus) (Muzaifa et al., 2016). Fresh red coffee will be chewed, the fruit flesh will be digested in the digestive system. Meanwhile, coffee wrapped in horn skin will recover. and comes out with the feces. The coffee will then be cleaned of the feces, dried and further processed like regular coffee. The fermentation process in the civet's stomach causes the taste of civet coffee to be different than ordinary processed coffee. Generally Robusta coffee is processed naturally because it saves costs. Studies conducted by Wijaya et al. (2019), regarding the efficiency of coffee processing, natural processing is the most cost-effective for areas that have high enough solar heat intensity compared to honey and washed processes. Natural processes are coffee that is processed immediately after the sorting process from red-picked coffee directly dried together with the outer shell (Sembiring et al.l, 2015). Coffee is dried until it is in the form of a pod.

RESEARCH METHOD

Materials and Tools.

Robusta Coffee from Kandangan Regency, Temanggung, TDS meter, pH meter, tools for cupping, scale, roasting machine.

Time and Place of Research

The research was conducted covering harvesting, fruit selection, giving coffee to civets, cleaning, stripping, roasting and cupping tests. Harvesting and selection of fresh coffee raw materials (cerry coffee) were carried out in Gesing Village, Kandangan District, Temanggung Regency. Treatment activities by giving coffee to mongoose, cleaning coffee from dirt and drying it were carried out in Pondok Village, Nguter District, Sukoharjo Regency. Stripping, roasting and flavor testing activities are carried out at Shine Coffee, Ngadirejo Village, Kartasura Kartasura District, Sukoharjo Regency. The measurement of pH, TDS and sugar levels was carried out at the Polytechnic of Santo Paulus Surakarta.

Step of this Research

The raw material used was robusta coffee. The coffee was harvested red-picked, selected and re-sorted and then given to the civet 30 heads. The digested coffee beans will be excreted with the feces the next day. The coffee beans was then cleaned of dirt and dried to a moisture content of 11-12%, which is about 3 days. Meanwhile, coffee that is not eaten will be dried directly. The flow of the process is presented in Figure 1. After obtaining roasted beans then the coffee was tested for density, sugar content, pH and the coffee image test is carried out. The sample consists of L (Digested coffee by civet) and N (Undigested coffee by civet).

Analysis Sampel

Testing density

Density testing was performed on green beans and roasted beans. The test was done by testing the weight of coffee divided by the volume. To measure density = mass (gram)/ volume (ml). The test was repeated 3 times.

Testing sugar levels:

Testing of sugar levels used the Hanna HI96800 refractometer and was repeated 3 times.

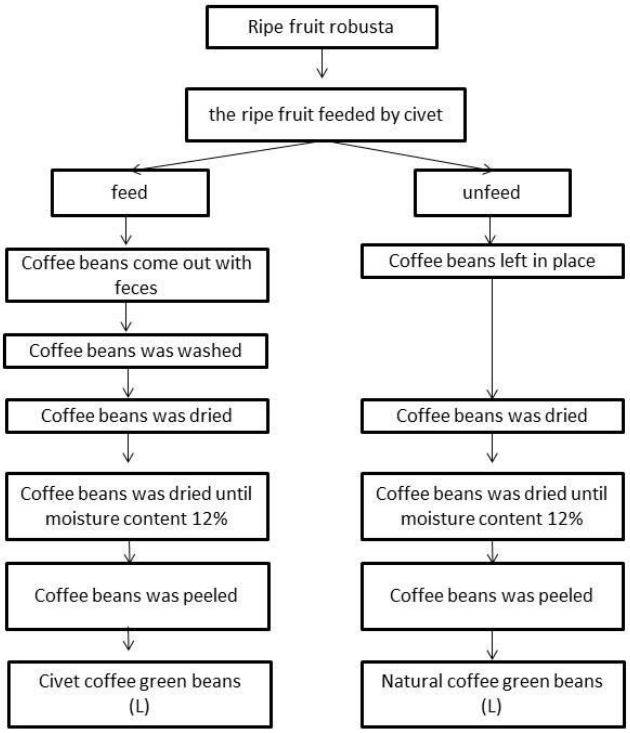

Figure 1. Processing Civet Coffee

pH testing

The pH test was carried out with the Hanna HI2002 pH meter. The test was repeated 3 times.

TDS testing

TDS testing was carried out using lovibond SensoDirect Con110. The test was repeated 3 times.

Cupping test

Based on the SCAA were observed in SCAA (2015). The test used coffee brewed with grindsize medium to coarse with a temperature of 93^0 Celsius with a ratio of 1:14. Taste testing was done by using paired comparison test with 25 untrained panelists. This test is carried out by assessing the presence or absence of a difference between the 2 products. After the panelists tested, then assessed whether there was a difference in coffee or not. After that, leave a comment on the types of differences found.

Analysis data

Data was analysis with SPSS 23. Processed using the statistics one tailed paired difference test.

RESULTS AND DISCUSSION

Before being brewed and enjoyed, the coffee goes through a roasting process. In the coffee roasting process, there are light, medium and dark profiles. The roasting level affects the character of the coffee produced. For Robusta coffee, the darker (dark) the roasting level is, the bitterness (bitter) character will be more dominant than other coffee characters such as sweetness. In this study, using a medium roast level so that

the coffee character is more complex. To obtain a medium roast level, information about the density of the coffee before and after roasting is needed.

Based on the density data in table 1, both natural Temanggung robusta coffee and Temanggung civet robusta have a value of between 651-700 g / l. This value is included in the medium density category. According to Noor (2019), the density is low if the value is <650 g / l, medium is 651-700 g / l, high is 701-750 g / l and very high is> 750 g / l. The coffee used comes from the same origin but is processed differently, so the density values are not much different. Based on this density value, it can be seen that the area where coffee is planted is in Kandangan Subdistrict, Temanggung Regency, which is an altitude of 800 mdpl. Based on the density data of civet and natural coffee, each has a value of 399.1 g/l and 339 g/l. This density value indicates that the level of the coffee roast is medium roast. Weight and yield reduction of 15% for both civet coffee and natural coffee.

Table 1. Coffee Density (g/l)

Samples	Density of green beans	Density of roasted beans
Natural of Robusta Temanggung Natural	687.53±0.10	339±0.22
Civet of Robusta Temanggung	689.5±0.08	399.1±0.08

Table 2. pH and Glucose Content (% Brix)

Samples	pH	(% Brix)
Natural of Robusta Temanggung Natural	5.88±0.06	1±0.00
Civet of Robusta Temanggung	5.513±0.00	1±0.00

It can be seen in table 2 that the robusta pH of civet coffee is lower than natural coffee, namely 5.51 for civet coffee and 6 for natural coffee. In the fermentation process, the results of the sugar breaking process are lactic acid and other acids, namely ethanol, butyric acid and proportional. (Sulistyowati and Sumartono, 2002). This is what causes the pH level of civet coffee to be lower than natural coffee. In the natural coffee process. The red plucked coffee will be immediately dried in the sun until the moisture content is 13% then peeled the pulp and horns until the coffee beans are left.

Testing of glucose levels using a refractometer shows a value of 1 in each coffee the data is shown in table 2. This shows that the level of sweetness of civet coffee and natural coffee is the same. In civet coffee, the digestive system of the civet cat contains amylolytic enzymes which hydrolyze carbohydrate components, especially starch, into glucose and simple sugars (Wilujeng and Wikandari, 2013). Carbohydrates from coffee beans will undergo hydrolysis to become glucose and other simple sugars to produce a sweet taste after fermentation (Redgwell and Fischer, 2006). In the natural process, red cherries are also fermented directly and naturally because the drying process lasts 3-5 days, so that it is within a span of time there is a natural degradation of carbohydrates into simple sugars.

Electro Conductivity (EC) is the concentration of ions dissolved in water. The more ions dissolved, the higher the water's EC. The EC calculation can also be used for the calculation of TDS (Total Dissolve Solid) by using a conversion table. TDS is the amount of substances dissolved in water when an ingredient is brewed, both organic

and inorganic). In Table 3, it can be seen that the TDS value of natural robusta coffee is lower than that of civet robusta. This shows that the amount of dissolved solids in civet robusta is more than that of natural robusta. This is indicated by the character of the civet robusta coffee body coffee which is thicker or heavier than the natural coffee.

The sensory test conducted on 25 untrained panelists showed that 24 panelists could distinguish the flavor and taste of civet robusta coffee and robusta coffee natural. This is shown by the data in table 3. Based on the paired sample test output table, it is known that the sig value. (2-tailed) is 0.000 <0.05, so H0 is rejected and Ha is accepted. H0 is that there is no difference between civet coffee and natural coffee. While Ha there is a difference between civet coffee and natural coffee. So from these data it can be seen that civet coffee is significantly different from natural coffee because of Sig (2-tailed <0.05.)

Table 3. Sensory statistical test for Robusta Natural and Robusta Luwak

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Natural of Robusta Temanggung Natural - Civet of Robusta Temanggung	4.6	2.0	0.4	3.774	5.426	11.500	24	0.000

Table 4. pH and Glucose Content (% Brix)

Samples	EC (mS)	TDS (ppm)	TDS (%)
Natural of Robusta Temanggung Natural	2.56±0.01	1792±5.72	0.1792±5.72
Civet of Robusta Temanggung	2.90±0.01	2030±5.72	0.2030±5.72

Civet robusta coffee has a more medium body character, low to medium bitterness, increased acidity. This character is different from natural robusta coffee which has a medium to high body, medium up bitterness, and less acidity. The difference in significant characters in civet coffee is due to civet coffee experiencing a fermentation process that occurs in the stomach of Tangkar civet for ± 8 hours. The lower bitterness or bitterness of civet coffee is also caused by lower protein levels. According to McCamey et al., 1990 stated that protein is a precursor to the bitter taste component in roasting coffee. Luwak coffee has a lower protein level than non-civet coffee. The low level of protein indicates that while inside the civet's stomach, coffee also comes out of the pulp.

The taste that is caught and detected is a non-volatile compound. These compounds include, the level of bitterness, sweetness, salty, acidity, sour / sour. These compounds can be detected by the sense of taste, namely the tongue. Meanwhile, other

volatile compounds will be detected by the sense of smell (nose) and also detected during cupping / taste test. The nasopharynx is the tube that connects the throat and nose. So that when tasting coffee, there are volatile compounds that will evaporate and be detected by the nose. In this study, the civet coffee used was civet coffee who experience the cleaning process of the civet feces and then dry it. Meanwhile, the natural robusta coffee used is natural robusta coffee which does not a washing process.

When conditions are greenbeans (raw coffee), civet and robusta natural coffee has a difference in aroma. Robusta luwak has a milky yet fresh aroma. Slightly different from natural robusta coffee which has the character of greenbeans aroma, fresh. In greenbeans (raw) coffee, coffee has flavor-forming precursor compounds that will be formed during the roasting process. According to Yusianto and Widyotomo (2013), raw coffee beans contain 180 volatile compounds such as aliphatic hydrocarbons, acids, alcohols, thiols, furans, pyrrole, pyridine, quinones, phenols and aromatic amines. In the medium roasting process, the volatile compounds will be released but are still within the maximum limit. Whereas in dark roasts, many volatile compounds are released into the air.

CONCLUSION

Civet robusta coffee and natural Temanggung robusta coffee have different coffee characteristics. civet Robusta coffee has a softer character in body, fragrance, and aroma of coffee. In addition, it has a lower bitterness level than natural Temanggung robusta coffee. It also has a higher acidity level than natural Temanggung robusta.

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