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Sensory Characteristics Of Pinogu Coffee From Bone Bolango Gorontalo

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ABSTRACT

Pinogu coffee is a superior coffee from the Gorontalo region. Pinogu coffee is a type of robusta coffee. From the results of the research conducted, this Pinogu coffee has sensory characteristics that tend to be bitter (taste and aftertaste) with the aroma of smoke and wood, followed by a burnt and roasted aroma and a slightly thick body or texture that coats the oral cavity. As for the chemical characteristics, ground Pinogu coffee contains a water content of 2.51%, caffeine content of 1.99%, and copper content of 13.86 mg/kg, for steeping the coffee contains a caffeine content of 0.06% and copper content of 0,39 mg/kg.

KEYWORDS

Coffee, Pinogu, Robusta

INTRODUCTION

Coffee is a drink that is quite popular among the community, especially among young people. Indonesia is known as one of the agrarian countries that have abundant natural wealth potential. Coffee in Indonesia is one type of industrial plant that contributes to a very large foreign exchange [1]. The most widely produced type of coffee in Indonesia is robusta coffee.

Coffee plantations in Indonesia are spread in various regions that produce coffee with different characteristics for each region. These characteristics include chemical and physical characteristics such as aroma, taste, aftertaste, mouthfeel, and color [2]. One of the coffee plantations in Indonesia is in the Gorontalo region. The most famous coffee in the area is Kopi Pinogu. Pinogu coffee itself is a coffee of the robusta type.

This Pinogu coffee certainly has a distinctive taste and aroma. In this study, characterization of aroma and taste and test of Pinogu coffee contamination.

MATERIALS AND METHODS

Material

The raw material used in this study is Pinogu coffee. In addition, mineral water is also used as a palate cleanser and brewing coffee. Methanol and water are used as car phases on HPLC (High-Performance Liquid Chromatography)).

Method

(1). Water content (SNI 01-2891-1992)

Pinogu coffee water content is produced through drying or thermogravimetric methods carried out based on SNI 01-2891-1992, coffee as much as 1-2g weighed in porcelain cups that have known weights, then dried with ovens with a temperature of 105ºC until they reach a constant weight. A porcelain cup containing a sample is put into a desiccator until the temperature drops, then weighed. The water

content of food products is the difference in weight loss from the sample (Sundari et al., 2015). Presentation of cereal flakes water content can be calculated with the following formula:

Water content (%) = W x 100%
W1

Information:

W = weight of the sample before it is dried (g)
W1 = sample weight after drying (g)

(2). Caffeine Levels (SNI 01-3542-2004)

Weigh + 2 grams of the sample put in a cup glass, add 50ml HNO3 10%, simmer for 30 seconds. Strain through a sieve cloth. The precipitate after washing is put back into the cup glass and added 50ml NaOH 25%, bringing to the boil again for 30 seconds. Strain and wash, precipitate it into a chemical tube and add + 1/2 of the contents, shake and take a little to check under a microscope, and compare it to standard.

(3). Metal Contamination

This metal contamination test is under SNI 01-2896-1998

(4). Sensory test

Sensory testing for coffee steeping is done by quantitative descriptive analysis. The number of panellists involved by 8 panellists trained for coffee (5 men and 3 women, ages 24 - 40 years).

The testing phase begins with a Focus Group Discussion (FGD), where panellists are briefed and given directions about the test methods used. In addition, FGD is also performed to determine the main attributes to be evaluated from the product being tested. These attributes include aroma, flavour, taste, texture, aftertaste/residue components. The attributes selected for further evaluation are 12: smoky aroma, wood aroma, caramel aroma, brown aroma, burning scent, roasting aroma, roasted aroma, sweetness, sour taste, bitter taste, texture/body, and bitter aftertaste according to consensus by panellists during FGD (Table 1).

Formal testing for 1 coffee sample (3 repeats) was conducted for 12 sensory attributes using a 15 cm intensity line scale (Figure 1). Experimental design and data collection using RedJade Sensory Software. The data obtained is further tabulated and presented in the form of tables and radar charts.

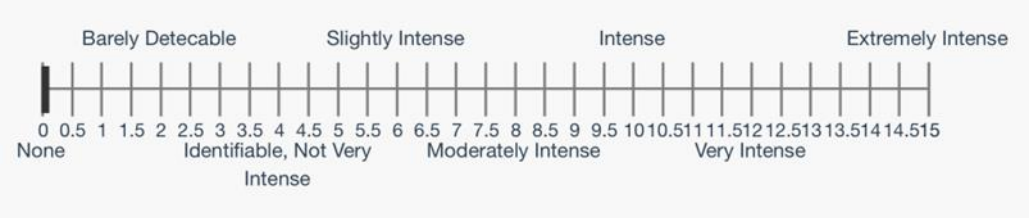

Figure 1. *Intensity Line Scale*

RESULT AND DISCUSSION

Chemical Characteristics

Chemical tests are tested for water content, caffeine levels, and copper metal contamination (Cu). The table below is the test result.

Water content is the amount of water contained in food commodities expressed in units of percent. Water content can affect the appearance, texture, taste, and shelf life of food commodities. The water content in coffee is very important because the water content determines the quality of the coffee [3]. Pinogu ground coffee water content of 2.51%, where the water content of ground coffee is generally in the range of 1-3.7%. Caffeine is one of the most important alkaloid compounds found in coffee [4]. The caffeine content in Pinogu ground coffee is 1.99% and for steeping is 0.06%. The level of caffeine in coffee drinks varies depending on the serving size, type of product, and brewing technique of coffee. Caffeine in coffee is associated with the physiological properties of coffee and also as a bitter characteristic giver in coffee [5].

According to SNI for ground coffee, the maximum allowed cu metal content is 30 mg/kg. Pinogu ground coffee samples contained Cu of 13.86 mg/kg and brewed coffee of 0.39 mg/kg. The levels of metal found in ground coffee are likely derived from the initial to the final production process. Because ground coffee is a beverage product whose composition does not contain Cu metal. So that the metal content is below the maximum level allowed and it can be said that the sample of ground coffee meets SNI standards for consumption.

Table 1. *Table of chemical characteristics*

Pinogu Ground Coffee		Pinogu Coffee Steeping	
Water content	2.51±0.0283%		
Caffeine levels	1.99±0.0014%	**Caffeine levels**	0.06±14.01 %
Copper (Cu)	13.86±0.08 mg/kg	**Copper (Cu)**	0.39±0.01 mg/kg

Table 2*. Sensory Attribute Description*

Sensory Attributes	Description
The smell of smoke	Sharp aroma of the origin of fumigation and burning of wood, the aroma of burning and ash
The Smell of Wood	Fragrant aroma of cedar wood, slightly moist effect
Caramel aroma	Sweet aroma of caramel/caramelized sugar.
Chocolate Aroma	Sweet chocolate, cocoa, creamy aroma
Burning Smell	The smell of burning burns
Smell of Roast	Smell of roasted beans
Roasted Aroma	The smell of toast
Sweetness	Basic flavors associated with sugar or sucrose
Sour Taste	Basic flavor associated with citric acid solution
Bitter Taste	Basic flavors associated with caffeine solution
Texture/*Body*	Thickness, viscosity, impression of coating the oral cavity (*mouth coating)*)
Bitter Aftertaste	The bitter taste that feels comes from the back of the mouth and persists after the coffee is discarded or swallowed.

Sensory characteristics

The sensory profile of Pinogu Coffee along with the intensity of each attribute tested is presented in Figure 2 and Table 2. Based on the resulting data, it can be known that the dominant profile of Pinogu Coffee tested was bitter (taste and aftertaste) with the aroma of smoke and wood, followed by the aroma of burning and roasting and a slightly thick body or texture coating the oral cavity. The taste and bitter aftertaste in Pinogu coffee are associated with the caffeine content contained in Pinogu coffee.

Brewed coffee also seems starchy (powdery), possibly because of the very smooth shape of coffee grounds (Figure 3). The size of these very fine particles is also thought to cause a fairly intense level of bitterness. In addition, the aromas of chocolate and caramel can be identified but not dominant, accompanied by a low intensity of sweetness and acid. This is

thought to be due to the strong dominance of bitterness and aroma associated with such bitter associations, such as smoke, wood, burning, roasting, which mask other aromas and flavours. The characteristics of coffee depend on many factors, one of which is the quality of green coffee beans, roasting conditions, brewing techniques, water types, and brewing conditions [6].

***Table 3**. Average Intensity of Each Sensory Attribute*

Attribute	Mean	SD
The smell of smoke	6,31	2,45
The Smell of Wood	6,10	2,35
Caramel aroma	2,92	1,37
Chocolate Aroma	3,58	2,12
Burning Smell	5,21	3,48
Smell of Roast	5,06	3,27
Roasted Aroma	4,10	2,18
Sweetness	2,40	1,48
Sour Taste	1,94	2,29
Bitter Taste	6,04	2,63
Texture / Body	5,63	1,67
Bitter Aftertaste	6,58	2,58

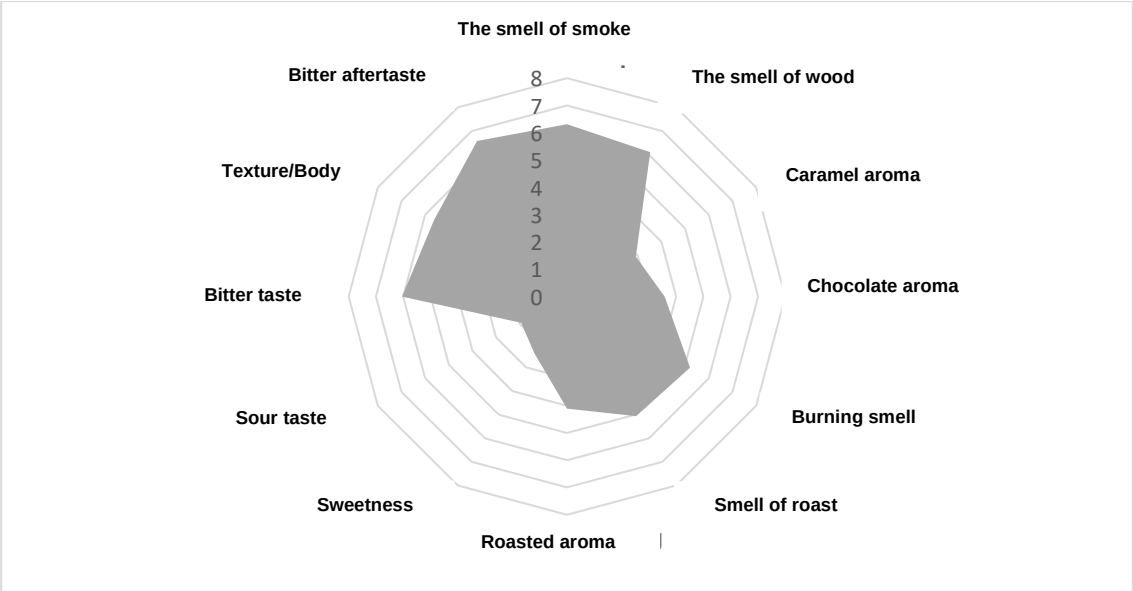

***Figure 2.** Sensorical Profile of Pinogu Coffee*

Figure 3. *Pinogu Roasted Coffee Grounds*

CONCLUSION

Pinogu coffee has sensory characteristics that tend to be bitter (taste and aftertaste) with the aroma of smoke and wood, followed by the aroma of burning and roasting, and a slightly thick body or texture coats the oral cavity. As for its chemical characteristics, Pinogu coffee powder contains a water content of 2.51%, caffeine content of 1.99%, and copper content of 13.86 mg/kg, for brewed coffee contains caffeine by 0.06% and copper content of 0.39 mg/kg.

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