

DIVERSITY OF BANANA VARIETIES (*Musa sp.*) IN PASRUJAMBE DISTRICT, LUMAJANG REGENCY

Novitalia (1), Pujiastuti (2), Ika Lia Novenda (3)

¹ Faculty of Teacher Training and Education, University of Jember
E-mail: novitalia291@gmail.com

² Faculty of Teacher Training and Education, University of Jember
E-mail: pujiastutimulyono8@gmail.com

³ Faculty of Teacher Training and Education, University of Jember
E-mail: ikanovenda11@gmail.com

Abstract

Banana plant is a plant that grows a lot in Southeast Asia so it is one of the plants that has important economic significance in Indonesia. One of the banana production centers is in Lumajang Regency, precisely in Pasrujambe District. The diversity of banana varieties in Pasrujambe District is still not widely known by the community so that the community itself has not been able to determine a clear standard of banana diversity including because bananas also receive less attention from the government and supervision related to aspects of cultivation, breeding activities and conservation regarding the preservation of banana germplasm. This became the basis for exploring the diversity of banana variety data collection in Pasrujambe District, Lumajang Regency. This research was conducted at the centers of banana collectors located in the District of Pasrujambe, Lumajang Regency in December 2019-February 2020. Taking samples by taking bananas based on the morphology of bananas. Sample obtained can be directly identified (identification of bananas assisted by the Pasrujambe Agricultural Office) using interview and observation methods. Then the results obtained are calculated diversity level with using the Shannon-Wiener diversity index formula. The results of this study were found 6 banana varieties, namely mas kirana, grand semeru varieties, milk varieties, ambon varieties, king varieties, and kepok varieties which were scattered in several collectors centers in Pasrujambe District. The level of diversity of banana varieties in Pasrujambe District Lumajang Regency is classified as moderate with a value of 1, 566.

Keywords: Diversity, Banana Varieties, Pasrujambe

PRELIMINARY

Indonesia is a country located at position 60 LU - 110 LS and 950 BT - 1410 East. As an archipelago with thousands of islands, the Republic of Indonesia has a high diversity of flora and is one of 17 mega biodiversity countries (BAPPENAS, 2016). The most abundant flora diversity in Indonesia including in the plantation and agriculture sectors, one of which is in the agricultural sector which has the biggest commodity is banana.

Banana plant is one of many plants that grow in Southeast Asia, so the banana plant is one of the plants that has important economic significance in Indonesia. This great diversity provides an opportunity for Indonesia to utilize and choose the types of bananas that are commercially needed by consumers, but so far there has been little attention given to bananas which are the most produced and consumed fruit commodities in Indonesia (Hamzah and Wahyu, 2018).

Banana plants in Indonesia are plants that are easily cultivated both in the yard, fields of the house and even banana plants are cultivated on a plantation scale (Juanita, 2016). In 2018 in Indonesia banana production reached 7.26 million tons (BPS, 2018). One of the provinces in Indonesia which has high banana production is East Java. East Java Province is the biggest banana producing province, and one of the banana centers in East Java is in Lumajang Regency.

Types of bananas (*Musa*) that are superior in Lumajang Regency include the king banana, ambon banana, agung banana and kirana mas banana. Diversity of bananas of several types that have penetrated the international market, namely Mas Kirana banana. According to the Lumajang District Agriculture Office (2018) explained that the largest area or land for banana plants is located in 2 districts namely Pasrujambe District and Senduro District. Pasrujambe District produces

249,760 quintals of bananas annually while Senduro District produces 273,212 quintals of bananas annually

Pasrujambe Subdistrict is one of the 21 Subdistricts in Lumajang Regency. Pasrujambe District is an area that supports banana growth, so that the production of bananas in Pasrujambe District ranks number two after Senduro District (Lumajang District Agriculture Office, 2013). The data can be seen that bananas have a high enough potential in Lumajang Regency, especially in Pasrujambe District but until now there is no accurate data showing how many types of bananas and banana diversity exist in Lumajang Regency, especially in the Pasrujambe District area.

This is because the Lumajang community itself has not been able to determine a clear standard of banana diversity (Lumajang District Agriculture Office, 2013). People are only able to distinguish the name of a banana based on the name of a fruit that is often known by the people without understanding how the differentiating morphology of one type of banana from another. Based on interviews with the Lumajang Agriculture Office stated that the diversity of these bananas received less attention from the government and supervision related to aspects of cultivation, breeding activities and conservation regarding the preservation of banana germplasm, so that the production of bananas in Lumajang decreased the number of species from bananas.

To overcome this reduction in banana germplasm, it is necessary to collect data on banana germplasm about the diversity of banana varieties in Pasrujambe District so that the source of banana germplasm in Pasrujambe District can continue to be evaluated. The results of the evaluation of banana germplasm can be used for banana plant breeding programs through improving the character that produces superior varieties, it is necessary to conduct research activities by exploring and identifying banana varieties using banana morphology markers. Therefore, a study entitled "Diversity of Banana Varieties (*Musa* sp.) In Pasrujambe Sub-District, Lumajang Regency and Their Utilization as Popular Scientific Books" was conducted.

Based on the background above, the purpose of this study is to find out what varieties are found in Pasrujambe District, Lumajang Regency and to find out the level of

diversity of varieties found in Pasrujambe District, Lumajang Regency.

RESEARCH METHODS

This research was conducted in the centers of banana collectors in Pasrujambe Sub-District, Lumajang Regency, precisely in 4 places, namely Pasrujambe Village, Jambekumbu Village, Jambearum Village and in the Agropolitan Market. The study was conducted on December 21, 2019 to February 4, 2020. The materials used in this study were bananas and the tools used in this study included meter, ruler, scissors, plastic bags, labels, cameras, raffia, loop, tools hardness or texture measurement of fruit (penetrometer).

Sampling was carried out exploratively by taking bananas based on the morphology of bananas so that varieties of various types of bananas in the location could be known. Samples obtained can be directly identified (identification of bananas assisted by the Pasrujambe Agriculture Office) to find out the banana varieties that exist from the samples found by using interview and observation methods. Details of data taken include the morphology of bananas as follows: selected fruit is fruit with good conditions can be measured bunches, combs, fruit stalks (presence or absence of trichomes on the fruit stalks), fruit size, fruit shape, fruit length, fruit tip, base fruit, fruit diameter, fruit hardness or texture, skin thickness or fragility, raw skin color and ripe skin, fruit flesh, fruit flavor, the presence or absence of seeds in bananas. Then the results obtained are calculated diversity level withusing the Shannon-Wiener diversity index formula.

The several methods in data analysis are as follows: analysis of the data obtained is presented descriptively describing the results of research on identifying the morphology of bananas along with pictures (photos), then attaching scientific names, local names of bananas, photos of morphological characters of bananas obtained when data collection and then the diversity of bananas is adjusted to the diversity index used to find out the diversity data of bananas obtained.

Calculation of diversity of banana varieties using the diversity index formula according to Shannon-Wiener (Maggguran, 2004).

$H' = -\sum P_i \ln P_i$, $P_i = n_i / N$
 Information:
 n_i : Number of individuals for the species observed
 N: Total number of individuals
 H' : Shannon-Wiener diversity index
 Criteria for yield diversity (H') are as follows:
 $H' < 1$: Low diversity
 $1 < H' \leq 3$: Medium diversity
 $H' > 3$: High diversity

Data analysis in the form of measuring the hardness of bananas using a penetrometer. Measurements were made when the skin has not been peeled using 3 fruits in one comb, then the fruit is placed perpendicular to the needle penetrometer until stable. The penetrometer needle is inserted in 3 parts of the fruit, namely the tip, middle and base of the fruit. The three

data obtained are then taken on average (Siregar, 2018).

RESULTS AND DISCUSSION

A. Diversity of Banana Varieties

Judging from the morphological characters of bananas, there are 6 varieties of bananas in Pasrujambe District, Lumajang Regency. Following are the identification results including the number of banana varieties (bunches) found in Pasrujambe District are presented in Table 1.1 and the identification results based on the morphological character of the fruit are presented in Table 1.2.

Following are the results of identification of the number of banana varieties in Pasrujambe Sub-District, Lumajang Regency, presented in Table 1.1

Table 1.1 Number of Banana Varieties in the Center of Collectors located in Pasrujambe District, Lumajang Regency

Sample	Number of Bananas (Bunches) at the Collecting Center				N
	Pasrujambe	Jambekumbu	Jambearum	Agro Market	
Sample 1	300	0	0	200	500
Sample 2	0	0	41	75	116
Sample 3	0	38	0	80	118
Sample 4	40	0	80	200	320
Sample 5	0	30	0	80	110
Samples 6	0	0	0	90	90
Total	340	68	121	725	1,254

Based on Table 1.1 in Pasrujambe District, 6 varieties of bananas were found with a total number of 1,254 banana bunches scattered in several different places.

Morphological characters of each banana sample found in Pasrujambe District

differed from the morphological character of sample 1 with other banana samples. Following are the results of the identification of bananas based on the morphological characters observed can be seen in Table 1.2 below.

Table 1.2 Identification Results Based on Morphological Characters of Banana in Pasrujambe District Lumajang Regency

Character	Sample					
	1	2	3	4	5	6
Bunches:						
• Bunch length	38 cm	47 cm	74 cm	74 cm	66 cm	80 cm
• Bunch diameter	4.7 cm	3.5 cm	9 cm	9 cm	5 cm	7 cm
• Number of combs / bunches	6-9 comb	11-14 comb	11-13 comb	6-9 comb	1-2 comb	10-16 comb
Comb:						
• Comb size	P = 1.4 cm L = 9.3 cm	P = 0.93 cm	P = 1.6 cm L = 13.3 cm	P = 1.6 cm L = 10.3 cm	P = 2.25 cm L = 6 cm	P = 1.9 cm L = 7.3 cm

• Number of fruit / comb	15-25 pieces	L = 6 cm 10-11 pieces	19-20 pieces	19-20 pieces	14-16 pieces	18-20 pieces
Fruit stalk:						
• The size of the fruit stalk	2 cm Green	1 cm Dark green	1 cm Dark green	3 cm Blackish green	5 cm Green	3 cm Green
• Color of fruit stalk	There is	There is	There is	There is	There is no	There is no
• The presence or absence of trichomes						
Fruit shape	Round symmetrical	Straight round slightly bent	Straight round slightly bent	Straight round	Rounded bent like a horn	
Fruit size	Large (as big as toes)	Large (as big as a thumb)	Big	Big	Big	Big
Fruit length	9 cm	9 cm	15 cm	18 cm	30-33 cm	12 cm
Fruit tip	Blunt	Blunt	Elongated pointed	Blunt	Elongated pointed	Blunt
Fruit base	Blunt	Blunt	Blunt	Blunt	Elongated pointed	Blunt
Fruit diameter	3.5 cm	2.5 cm	4 cm	5 cm	6-7 cm	4-5 cm
Fruit color:						
• Raw fruit color	Green	Light green	Green	Dark green	Green	Green
• Ripe fruit color	Yellow	Yellow	Yellow	Light green	Yellow	Yellow
Rind	Thin	Thin	Thin	Thick	Thick	Thick
Flesh of fruit:						
• Fruit flesh color	Yellow	Yellow is a little white	Leucorrhoea yellow	White is a little yellow	Yellow a little orange	Yellow is a little white
• Hardness (texture) of fruit	3.4 mm / s	9.2 mm / s	8.53 mm / s	4.73 cm	2.7 mm / s	4.56 mm / s
Fruit flavor	Sweet	Sweet	Sweet	Sweet	Sweet little sour	Sweet little sour
Seed	-	-	-	-	-	-

Based on Table 1.2 the morphological characters of each sample are different = different from the 6 samples obtained. The description of each sample of banana varieties found in Pasrujambe District is as follows:

According to Prahardini, et al (2010) Banana Mas Kirana included in *Musa acuminata* Colla variety of Mas Kirana. The Kirana banana variety is only found in the village of Pasrujambe. *Musa acuminata* var. Mas Kirana is a banana variety that is used as one of the superior in Lumajang Regency with the origin of the name Kirana coming from the Regent of Lumajang who gave the name Kirana.

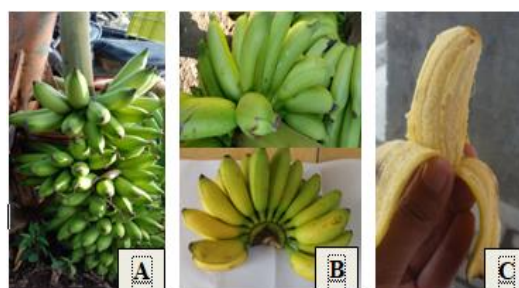


Figure 1.1 (A) Banana Kir Kirana in one bunch, (B) Kir Kir Mas in one comb (unripe and ripe bananas), (C) Kir Kirana mas (Source: Personal documentation)

Banana Kir Kirana has a bunch of around 38 cm and a diameter of about 4.7 cm with a number of combs per bunch about 6-9 combs. The size of the comb of the banana gold Kirana after being measured has a length of about 1.4 cm and a width of 9.3 cm with a number of fruit per comb around 15-25 pieces. Kirana gold banana has a 2 cm long stalk with a green color of the stalk and trichomes appear on the stalks of Kirana gold banana. Kirana gold banana length is about 9 cm. Kirana gold bananas are large (as big as toes) and have a symmetrical spherical shape whose fruit is 12 cm in diameter with the tip of the fruit and the base of the blunt fruit.

In general, the skin color of banana goldfish Kirana when it was raw was green and when it was ripe it was yellow but at the time of the study the bananas found in the ripe state were more yellow than green. Kirana gold banana skin tends to be thin.

Kirana gold banana flesh is chewy and punel with fruit flesh color that is yellow with hardness of flesh reaching 3.4 mm / s. The taste of Kirana Banana is sweet and this Banana Kirana has no seeds. Consumption of banana gold Kirana directly eaten or used as table fruit.

Morphological characters of banana goldfish Kirana which is not owned by other banana varieties that can be seen from the shape of bananas goldfish Kirana are round and large, sweet taste, has a short stalk (not easy to fall) and flesh of the fruit that is punel (not soft) (Prahardini et al, 2010).

According to Nayoan, et al (2014) milk bananas are also included in *Musa acuminata* Colla milk varieties. Banana milk is a banana variety found in the village of Jambearum. Bunches of milk bananas reach 47 cm with a diameter of about 3.5 cm. The number of combs per bunch of milk bananas is around 11-14 combs. The size of a comb from a milk banana is a comb length of about 0.93 cm and a width of 6 cm with a number of fruit per comb around 10-11 pieces. Milk bananas have a stalk of about 1 cm in color with a dark green stalk and also have a very delicate trichome almost invisible to the eye found on the fruit stalk.

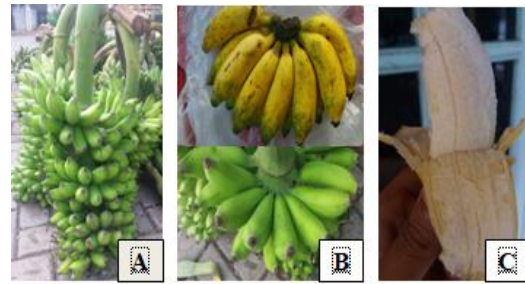


Figure 1.2 (A) Milk bananas in one bunch, (B) Milk bananas in one comb (unripe and ripe bananas), (C) Banana milk meat (Source: Personal documentation)

The fruit is about 9 cm long and the size of the milk banana is quite large (as big as a thumb) with a fruit diameter of about 11 cm. The shape of the fruit is straight and slightly bent, the tip of the fruit and the base of the blunt fruit. The skin color of banana milk in general when it is still raw is green and when it is ripe it is yellow, but at the time of the study the ripe banana milk was yellow with a green tip. Banana skin of milk also tends to be thin.

Milk bananas have soft fruit flesh with a hardness of fruit reaching 9.2 mm / s so that the level of hardness of banana milk is categorized as low so the texture is very soft. The color of the banana milk is yellow, slightly white. The taste of Kirana bananas is sweet so these milk bananas are consumed directly (can be used as a table fruit).

Morphological characters that differentiate with other banana varieties are located in the skin of the fruit, fruit flesh and fruit flavor of banana milk. Milk banana skin texture is thin. The fruit flesh of the milk bananas in the village is slightly white and soft-textured. In addition, the fruit taste of the sweet milk banana when the milk banana fruit is completely ripe with marked yellow skin color with brown spots.

Ambon bananas are also included in *Musa acuminata* Colla ambon varieties (Hapsari et al, 2015) with morphological characters, which are around 74 cm in length with a diameter of 19 cm in bunches. The number of combs per bunch is 11-13 combs and the number of fruit per comb is around 19-20 pieces. Banana Ambon has a comb size of 1.6 cm long and 13.3 cm wide. The ambon banana stalk measuring 1 cm with a dark green color of the fruit stalk, ambon banana also has trichomes on the fruit stalk.



Figure 1.3 (A) Ambon bananas in a bunch, (B) Ambon bananas in one comb (unripe and ripe bananas), (C) Ambon banana flesh (Source: Personal documentation)

The length of the fruit from ambon banana is around 15-19 cm and has a relatively large fruit size with a fruit diameter of about 12 cm. The shape of the fruit is slightly bent at the end of the fruit. The shape of the tip of the fruit is pointed and elongated the shape of the base of the blunt fruit. The size of the Ambon banana is large so that the flesh of the Ambon banana is also thick, the morphological character is not shared by other banana varieties.

The skin color of the banana when it is raw is green and when it is ripe it is yellow, with a relatively thin skin thickness. Chewy-fleshed flesh with a hardness of 8.53 mm / s. Khaki yellow flesh color (whitish yellow). This ambon banana has a sweet fruit taste so it can be consumed directly.

Musa parasidiaca var. *kingalso* found in Jambekumbu village, similar to ambon banana varieties but Raja banana varieties have different morphological characteristics from ambon banana varieties.



Figure 1.4 (A) Plantain in one bunch, (B) Plantain in one comb (unripe and ripe bananas), (C) Plantain fruit meat (Source: Personal documentation)

The morphological character of the Raja variety is a banana that has a bunch of about 66 cm in length with a diameter of about 19 cm. The number of combs per bunch is around 6-9 combs with the number of fruit per comb around 11-12 pieces. Plantain has a comb size of 1.6 cm long and 10.3 cm wide. The king banana stalk is 3 cm in size with a dark green black stalk and there is a very delicate trichome on the fruit stalk. The length of the plantain is around 18 cm and the fruit has a diameter of about 15 cm so that it is included in the large fruit size. The shape of the fruit is slightly bent straight with the shape of the tip and base of the blunt fruit.

The rind is fairly thick with the color of the rind of the fruit when it is still raw green and when it is ripe it turns light green with the fruit stalks turning yellow. The texture of the flesh of the plantain is chewy and slightly white and slightly yellow with a hardness of around 4.73 mm / s. The taste of the plantain is sweet and there are no seeds, so it can be consumed directly and can also be processed first in consumption as used in various snacks or cake raw materials.

Morphological characters of plantains that are not possessed by other bananas can be seen from the thick skin of the plantain and have a fragrant fruit aroma and the aroma of the fruit is very strong (Nuramanah, 2012).

Musa parasidiaca var. *grand semeru* also found in the village of Pasrujambe but not many in number. That is because the morphology of Semeru Agung bananas found in Pasrujambe village, has a short fruit size and small round shape while the varieties of Semeru Agung Bananas in Jambearum village have super quality bananas. It can be seen from the large size of the fruit and round shape with a hard texture of hard flesh.

In general, the morphological characteristics of the great ageru semeru variety include bunches of about 35 cm in length and 5 cm in diameter. Great bananas have 1-2 combs per mark and the number of fruits per comb is around 14-16 pieces. This agung banana comb has a length of about 2.25 cm with a width of 6 cm.

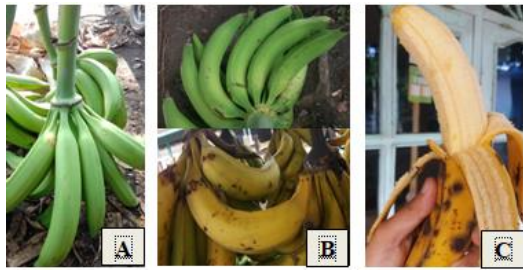


Figure 1.5 (A) Semeru great bananas in a bunch, (B) Semeru great bananas in one comb (unripe and ripe bananas), (C) Semeru great bananas (Source: Personal documentation)

Great banana stalks are very long compared to other types of bananas, which are 5 cm in size with the color of the green fruit stalks. This great banana besides being big also has a fruit length of about 30-33 cm so it is different from other types of bananas. The shape of a large fruit with a diameter of 19 cm and is usually known as the shape of a horn, with the tip of the fruit and the base of the fruit is elongated pointed.

The color of agung banana when it is raw is green and when it is ripe it is yellow, but during the research the semeru agung banana which is ripe is yellow with a little brown spots with a skin thickness of about 0.3-0.4 cm so the skin of this great banana tends to be thick. The texture of the fruit from the great banana is chewy with the hardness of the fruit reaching 2.73 mm / s so that the flesh of the semeru agung banana is high and the flesh tends to be hard. The color of the flesh of the fruit is pale yellow when still raw and yellow is slightly orange when ripe. The taste of the great banana is sweet and slightly acidic, so consumption must be processed first, such as chips, jam and others.

Banana varieties found in Agro Market are mas kirana varieties, milk varieties, semeru great varieties, ambon varieties, king varieties. However, these varieties have been found in centers of banana collectors at the time of the study, while the varieties of kepok (Musa paradisiaca var. Kepok) were only found in the Agro market.

The morphological character of the Kepok banana variety is that this Kepok Banana has a bunch length of 80 cm so that it is large in size. The diameter of the bunch owned by Kepok banana is around 7 cm in one bunch and has a number of combs per bunch about 10-16

combs with a number of fruit per comb around 18-20 pieces. The length of the Kepok banana comb reaches 1.9 cm with a width of 7.3 cm. Kepok banana stems are also classified as about 3 cm long with green stems.

Kepok banana length is about 10-12 cm so that its size is large. tip and base of the blunt-shaped Kepok banana with a fruit diameter of about 14 cm. Kepok bananas are straight but not symmetrical but rather sprawled and square in shape, this is what distinguishes the morphological character of Kepok bananas from other bananas.

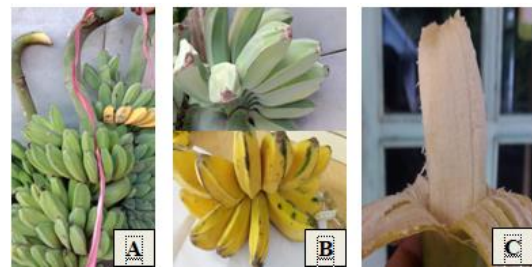


Figure 1.6 (A) Kepok bananas in a bunch, (B) Kepok bananas in one comb (unripe and ripe bananas), (C) Kepok banana flesh (Source: Personal documentation)

Kepok banana skin color when it is raw is green and when it is ripe it is yellow and has a thick rind. Kepok banana flesh is a little hard with the color of yellow flesh and some are white. The level of hardness of the flesh reaches 4.56 mm / s. The taste of the fruit is a little sour, therefore banana kepok can be consumed after being processed first into chips, sale, flour, syrup and others.

In addition to the explanation above also obtained data on the calculation of the diversity of banana varieties in the District of Pasrujambe, Lumajang Regency. The diversity index value of banana varieties is calculated using the Shannon-Wiener diversity index formula (H') and the value of the diversity index index of banana varieties is classified as medium. Data on the calculation of the diversity of banana varieties in Pasrujambe Sub-District Lumajang can be seen in Table 1.3 below.

Table 1.3 Calculation of diversity of banana varieties in Pasrujambe District Lumajang Regency

No	Variety Name	total	P_i	$\frac{n(n-1)}{N(N-1)}$	$\ln P_i$	$P_i \ln P_i$	H'
1	Mas Kirana Varieties	500	.398	249,301	-0,921	-0,366	.366
2	Milk Varieties	116	0.092	13,329	-2,385	-0,219	0.219
3	Ambonese varieties	118	0.094	13794	-2,364	-0,222	.222
4	Great variety semeru	320	0.255	101,998	-1,366	-0,348	.348
5	King's Varieties	110	0,087	11,980	-2,441	-0,212	0.212
6	Kepok Varieties	90	0.071	8.003	-2,645	-0,187	.187
	Total	1,254	1	398,405	-12,122	-1,566	1,566

Note: H' = Shannon-Wiener Diversity Index, n_i = Number of species i , N = Total number of individuals

Based on Table 1.3 above it is known that Pasrujambe Sub-District Lumajang District has a moderate diversity of banana varieties with a value of 1.566.

B. Fruit Violence

Hardness measurement of banana using penetrometer. Measurements were made when the skin of the fruit had not been peeled using 3 fruits in one comb (sample 1, sample 2 and sample 3) then the measurement of fruit hardness was carried out in 3 parts of the fruit, namely the tip, middle and base of the fruit. The three data obtained are then taken on average. The average of the results obtained is used as an indicator of the level of hardness of the fruit, if the smaller the average obtained, the harder the fruit. The results obtained can be seen more clearly in Table 1.4 as follows.

Table 1.4 Results of fruit hardness calculation from 6 banana varieties in Pasrujambe Sub-District Lumajang Regency

No	Varieties	Fruit Hardness (mm / s)
1	Great Semeru Varieties	2.73
2	Mas Kirana Varieties	3,4
3	Kepok Varieties	4,56
4	King's Varieties	4.73
5	Ambonese varieties	8.53
6	Milk Varieties	9.2

Based on Table 1.3 above shows that the level of fruit hardness is different. Fruit hardness of the hardest is found in semeru great

varieties with an average level of fruit hardness of around 2.73 mm / s. The second highest level of fruit hardness is mas kirana variety with an average fruit hardness level of around 3.4 mm / s, then the third sequence is kepok variety with an average fruit hardness level of around 4.56 mm / s. The fourth level of fruit hardness is king variety, with an average fruit hardness of around 4.73 mm / s, ambon variety is fifth with an average fruit hardness of around 8.53 mm / s. The last level of fruit hardness is milk varieties with an average fruit hardness of around 9.2 mm / s. Changes in fruit hardness can be used as indicators of the level of fruit maturity (Suyanti and Ahmad, 2008). Changes in the level of fruit hardness occur due to the degradation of pectin and hemicellulose substances in banana flesh which makes the fruit flesh softer, if the breakdown of pectin compounds is inhibited then the resulting fruit texture will be hard (Sutojiwo and Widodo, 2013). In addition, fruit maturation is also caused by the production of ethylene hormone derived from the fruit itself. Ethylene hormone is a hormone in the form of gas and plays an important role in the process of fruit ripening (Murtdha et al, 2012).

Additional indicators in the observation of banana varieties, in addition to indicators of banana hardness, there are also other additional indicators, namely the presence or absence of trichomes on the stem of the fruit. This trichome looks like fine hairs (Prahardini et al., 2010) that are on the banana stalk, but there are some trichomes that are invisible to the eye because they are so delicate that they can be seen using a magnifying glass.

Trichoma in the fruit stalk can be used as an indicator of whether the banana variety can be eaten directly or not. Banana varieties that have trichomes on fruit stalks are bananas that can be consumed directly while bananas that do not have trichomes on the fruit stalks cannot be consumed directly so consumption must be processed first. Banana varieties that have trichomes in the fruit stalks include mas kirana varieties, milk varieties, ambon varieties and banana varieties that do not have trichomes on the fruit stalks such as the semeru and kepok great varieties.

CONCLUSION

Based on the results of research and discussion that has been described, it can be concluded that the varieties of bananas found in Pasrujambe Sub-District Lumajang District there are 6 varieties, among them are mas kirana varieties, semeru great varieties, milk varieties, ambon varieties, king varieties and kepok varieties. The diversity level of banana varieties in Pasrujambe Subdistrict, Lumajang Regency is classified as moderate. The index value of diversity of banana varieties obtained was 1.566.

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