

Conference Paper

Typical Characteristics of Agung Banana (*Musa paradisiaca*) from Lumajang

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ORCID:Yunita Rakhmawati: <https://orcid.org/0000-0002-1280-8897>**Abstract**

Banana is a superior commodity in Indonesia, and its growth is unaffected by seasons. Lumajang districts are one of the significant regions of East Java known for producing bananas, particularly the Tanduk banana (*Musa paradisiaca*) which are also known as the agung banana. The aim of this study was to characterize agung banana as one of the *M. paradisiaca* cultivars. The present study was conducted between May and June 2020 in Pasrujambe sub-district. The results showed that agung banana is typically shaped like a horn and is 32 cm in length and 16 cm in diameter. Each bunch of agung banana has about 1–2 hands. Every hand has 15–20 fingers and weighs around 20–30 kg per bunch. Agung banana has a thick pulp and is sweet and yellow in colour. The colour of rind changes to black after about two weeks, and although it might look like a rotten fruit, the pulp remains hard and tastes sweeter. Each cluster has about 2–3 suckers. The fruit is generally ready for harvest after 11 months of plantation and can hold on for up to three weeks.

Keywords: characterization, banana, *Musa paradisiaca*, Lumajang

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1. Introduction

Indonesia is a country that is very rich in germplasm. Almost every region in Indonesia has germplasm with its characteristics. The utilization of local potentials to overcome national nutrition problems is very necessary. Banana is one of Indonesia's superior commodities and is not influenced by the season. East Java has the most considerable banana product contribution in Indonesia, amounting to 21.87%. Banana production centres in East Java are scattered in several regions. The two largest production centres are from Lumajang and Malang Districts [1, 2]. Banana ranks 4th as the most consumed food in the world after corn, wheat, and rice [2]. Lumajang Regency has one of the typical horn banana cultivars. Some of the districts with the most massive banana

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production in Lumajang Regency are in Senduro and Gucialit Districts [3]. However, these two areas are areas of food and nutrition insecurity [4]. The nutritional content of horn bananas has not been found in Indonesian food composition. However, research related to Lumajang's typical cooking banana in the form of flour is known to have a carbohydrate content of 79.9%, 2.9% protein, 1.1% fat, seven types of fatty acids, and 16 types of amino acids [5, 6]. Therefore it is necessary to use bananas with more processed variations as an alternative for food commodities in an effort food security and improve the nutritional status of children under five. Many toddlers suffer from nutritional problems in Indonesia. Toddlers are a future national asset that must be considered for their growth and development. This research conduct to increase the utilization of the local potential of the region to help reduce food and nutrition problems and expected to be one of the efforts for food diversification alternatives.

2. Material and Method

This study aims to identify the characterization of the typical Lumajang horn banana, as initial data for research in the following year. The data to be collected includes the morphological data of the banana horn. This research is descriptive studies and sample taken from Pasrujambe sub-district, Lumajang district.

3. Results and Discussion

Agung Banana is one type of processed banana and based on the species it is included in *Musa parasidiaca* [7]. The result of the research are agung banana has a typical shape like a horn with the length of fruit about 32 cm, fruit diameter about 16 cm. The number of hands of bananas is 1-2 hand for a bunch of bananas. Every hand has 15-20 finger and the weight around 20-30 kg per bunch. Agung banana has a thick pulp, yellow colours, and sweet. The colour of rind change to black colours after two weeks look like rotten fruit but the pulp still hard and the taste sweeter. The number of suckers is 2-3 sucker/cluster. The fruit ready to harvest after 11 months since it has been planting and it can be holding on to 3 weeks.

In Figure 2 and Figure 3 are the cross sections and longitudinal sections of the banana horn on the 11th day after harvest. Table 1 shows that on the 11th day the banana peels had turned black, but the inside after being peeled was still yellow. The inside texture of the banana on the 11th day was still hard and not bumpy.



Figure 1: (a) The agung banana tree; (b) length of banana (post-harvest). Source: Author's own work.



Figure 2: Cross section of agung banana after 11 days post-harvesting. Source: Author's own work.

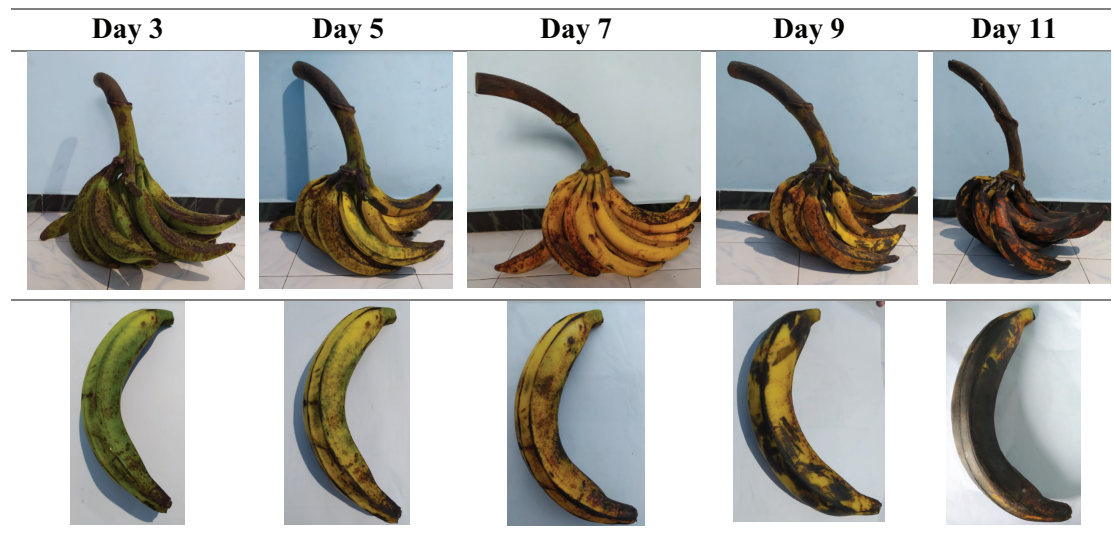


Figure 3: Longitudinal section of agung banana after 11 days post-harvesting. Source: Author's own work.

Table 1 shows the physical changes post-harvest. On day 1 at harvest time, the colour of the bananas has not changed as in the tree (Figure 1). On days 3 to 11, the bananas showed a change in colour and texture. On the 11th day the banana stalks also darkened with a softer texture.

Horn Bananas have large, long, curved fruit shapes like horns. The horn banana in Lumajang Regency is also known as Pisang agung semeru. The characteristics of the Agung banana variety are bright red, the number of tillers is 1-2 tillers/clump, the fruit's size is large and long (33-36 cm), the number of combs is 1-2 combs/bunches with a weight of 10-20 kg/bunch. Another advantage of this banana variety is the thick rind of

TABLE 1: Post-harvest changes.



Source: Author's own work.

the fruit so that can be stored 3-4 weeks after picking and has a sweet taste. Agung banana based on its species, is included in *M. parasidiaca* [7, 8]. Chemical analysis of banana varieties of Agung banana in 100 grams of material, which contains 9.88 mg of Vitamin C. In previous studies, horn bananas in other areas were green when raw and yellow when ripening with beta carotene levels of 0.71 per 100 g. Based on the Directorate General of Processing and Marketing of Agricultural Products found that bananas had a reasonably high vitamin A content of 0.003-1.0 mg per 100 g, especially in banana horn [8, 9].

The research result is that the agung banana has a typical shape like a horn with the length of fruit about 32 cm, a fruit diameter about 16 cm. The number of hands of bananas is 1-2 hands for a bunch bananas. Every hand has 15-20 fingers, and the weight around 20-30 kg per bunch. Agung banana has a thick pulp, yellow colours, and sweet. The colour of rind change to black colours after two weeks look like rotten fruit, but the pulp still hard and the taste sweeter. The number of suckers is 2-3 sucker/cluster. The fruit is ready to harvest after 11 months since it has been planting and can be holding on to 3 weeks. The shelf life is tolerable because the banana skin is thick so that the process of water loss and fruit softening becomes slower. Also, it is also influenced by the level of fruit maturity and temperature at the time of storage, which can affect the work of enzymes that can change the texture of the banana [10]. The agung banana character has a small number of tillers because the planting process does not require thinning, minimizing labour costs and production costs. Another advantage is the size of the fruit and sufficient fruit weight in each bunch. In the production process, making

banana chips as a home industry is very profitable. Leaf spot disease is less common than other types of banana [7].

4. Conclusion

Agung banana, is a type of horn banana with distinctive characteristics, has a larger size than other cultivars and longer shelf life. It has a thick pulp, yellow colours, and sweet. Further research is needed to regard the content of the great banana, the comparison of samples from other areas in Lumajang district, and efforts to change the shape of the great banana into other forms to increase the value of the great banana as a food source.

Acknowledgement

None

Conflict of Interest

The authors state that there is no conflict of interest of this study.

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