

Response to Reviewer 1 Comments

1. There some lots of biological descriptions on banana are not right or not inaccurate. For example, Line 143-146, bananas actually originated from Southeast Asia and the South Pacific. And, the flowering trees can be woody plants and also can be herbaceous plants. Please re-write this part, and also please check the text thoroughly.

The paragraph containing this information have been replaced by

Researching bananas is possible to focus on two major streams. The first one explores the banana herbs and focuses on their fruits. The banana was originated from South-East Asia and western region of Pacific. It is thought that bananas were domesticated since 7,000 years ago in South-East Asia [1]. It is explained more by [2] that several countries in this region are the origin places of bananas and transformed into the center of the biodiversity of bananas. One of the banana section mostly found in Eastern Indonesia and Pacific region, namely the Australimusa that spreads in the Philippines, Moluccas and Papua and New Guinea, are the tallest banana herbs and their biggest fruits (Fe'i Banana). Besides that, Calimusa has the smallest fruits and banana herbs that spread in the West of Indonesia, Malaysia, and Thailand. Both belong to the groups named Eumusa-Rhodoclamps [3].

And

The terminology of banana is always interchangeable with banana herbs. In this case, it might be related to the name of a fruit, called the banana. Some of them are allowed to consume directly, which also named banana. Some others are required to cook, known as plantain. The ancestor of these two groups came from the Eumusa, the major section of banana [4]. Most of the edible banana is came from the hybridization of the Musa acuminata and Musa balbisiana, which produced diploid genome bananas (such as AA and AB), and are also possible to produce triploid genome bananas (AAA, AAB, and ABB) [5,6]. Currently, edible banana production has rapidly grown, reaching the highest global production of bananas at about 22.2 million tonnes in 2020, a growth of 1.7 per cent compared to 2019. There is a high supply growth in Ecuador, Costa Rica and Colombia, three of the five leading exporters [7].

“Banana is a herbaceous plant equipped with a pseudostem and does not have a woody tissue. This plant is a monocot and originating from the tropics of Indo-Malesia, Asia, and Australia. In general, a banana herb have a stem-like structure called suckers. After being harvested and cut down, this part will replace the entire herb life. In short, the suckers is the part of the banana herb used to create a new herb. Banana herbs also have many leaves that grow overlapped the apparent trunk of their pseudostems. A mature herb has seven to ten leaves and can stretch to more than 3 meters and form a canopy over 6 meters in diameter (Figure 2).”

2. There are some grammatical errors. Line 32 'characteristic' needs to changed to 'characteristics', and what's the meaning or refering of "It is possible to gain."

The word 'characteristic' has been changed to 'characteristics'

The sentence “It is possible to gain” is part of this sentence “Similar techniques may be applied to explore and analyze the characteristic of the fruit. It is possible to gain” have been replaced by “Furthermore, plant canopy, health and plant disease, and herbs water content analyzed through satellite images and aerial photos of drones gave advantages to describe bananas distribution in many places in Indonesia, from the local to regional. Similar techniques may be applied to explore and analyze the characteristic of the fruit.

3. Line 488, *Musa acuminata* should be italic, and check all the scientific names of the text.
Musa acuminata has been replaced by *M. Acuminata* as well *Musa trogloditarum* to *Musa troglodytarum*
4. If possible, the authors can give a short overview on the advantages and disadvantages on the technologies metioned in the paper in the last prat of "9. Future research".
The explanation of “future research has added.

The studies regarding banana ripening by using transcriptomics have been published as transcriptome dataset of chitosan-treated *Musa acuminata* cv. Cavendish (AAA group) to study RNA profile during delayed ripening [52] and ethylene-treated *Musa balbisiana* cv. Pisang Klutuk Wulung (BB group) to study RNA profile of this late ripening banana [53]. For metabolomics study, metabolites profile of chitosan and low temperature-treated banana has also been identified to study the delay of ripening mechanism on *M. acuminata* cv. Cavendish fruit [54]. The study on comparative genomics also has been conducted to reveal the differences of some ripening-related genes between *M. acuminata* and *M. balbisiana*, namely *pectin methylesterase (PME)* and *pectin methylesterase inhibitor (PMEI)* which take a responsible in cell wall remodeling [55], and *beta-amylase (BAM)* which has a role in carbohydrate metabolism [56]. These findings could become an initial study to reveal ripening mechanism on banana fruit and could be integrated to spectral reflectance of banana fruit, since omics study give a deep insight on this mechanism. Along with this, further studies may have to focus on building the relationship between the spectral reflectance of banana to the genome, transcriptome, and metabolome characteristics during ripening stages and the ripening analysis using artificial intelligence (AI). The future perspective of the integration of these methods results in advanced studies on a banana since it can contribute to other scientific fields, such as industries, food technology and post-harvest, to eco-tourism.