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Detection of Decaying Aroma of Salak Pondoh (*Salacca edulis* reinw) in Fifteen Days Storage at Room Temperature

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Abstract

Salak pondoh (*Salacca edulis* reinw) is one of horticulture product that easily to decay. Decaying aroma is one of indicators for qualities loss of salak pondoh. The purpose of this research is to detect the decay aroma of salak pondoh during the storage of 15 days. The preservation was categorized into three stages of preservation time: early, middle, and last day. All salak was preserved in room temperature at aseptic condition with detected humidity at 50-60%. According to the obtained data, it was detected that decay aroma was detected in 80% of salak in last stage of preservation. Amazingly, 5% of salak at this stage was not detected its decay aroma. As conclusion, decay of salak could be determined by the decay aroma and mostly it was appeared in the last stage of preservation.

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Introduction

Salak pondoh (*Salacca edulis* reinw) is one of the original Indonesian exotic fruits which has a high economic value compared to other types of salak (Dhamayanti *et al.*, 2002; Rachmawati, 2010; Putra and Agustina, 2014; Sabarisma *et al.*, 2015). Salak Pondoh has a moisture content of 78% and carbohydrate which is equal to 20.9%, so it is easily damaged by microorganism activity (perishable) (Putra and Agustina, 2014). The microorganisms that cause spoilage in pondoh are generally moulds which include *Aspergillus* spp., *Monilia* spp., *Mucor* spp., *Wallemia* spp., *Rhizopus* spp., *Thielaviopsis paradoxa,* and *Penicillium* spp. (Reed, 2016). *Penicillium* spp. Is categorized as osmophilic, so it is known to be dominant in salak pondoh (Dhamayanti *et al.,* 2002). These microorganisms can cause decay in salak pondoh which can reduce the quality of salak.

Until now there is still minimal research that focuses on the study of the emergence of decay aromas in salak. This research is focused on observing the appearance of decay aromas in salak pondoh for a fifteen-day of shelf life. The purpose of this study was to find out the appearance of decay aromas during a fifteen-day shelf life.

Materials and Methods

The research was conducted from October 2017 until January 2018 at the Microbiology Laboratory, Indonesian Center for Agricultural Harvest Research and Development, Agricultural Research and Development Agency, Ministry of Agriculture, Bogor. Salak was obtained from Turi, Sleman, Yogyakarta by one night transport to laboratory and immediately sorted, so it had a weight of 35±3 g. Salak was then cleaned using aseptic thin paper. Immediately after cleaning, salak was stored using 0.45 μm porous containers in a aseptic room storage which was carried out at room temperature for 15 days. A total of 81 salak were grouped into 3x3 containers which were used as replicates. At the 5, 10, and 15th day storage, three fruit snakes were taken to observe the decay aroma as early, middle, and last stage, respectively (Susanty and Sampepana, 2017).

Detection of Decay

Decay aroma was analyzed by 5 expert panelists. Salak was collected individually and tested immediately to panelists to obtain the decay aroma. There were two choices for decay aroma: positive or negative. The detected-decay-aroma salak was then calculated. Data presented in percent of decayed-salak.

Data Analysis

The test results of the total acid level were calculated using Microsoft Excel 2007 and the data was shown as percentage.

Results and Discussion

Based on obtained data, it can be calculated that on the no decay was detected in salak at early stage of preservation while the number of decay then tended to increase up to 15 and 80% for middle and last stage of preservation, respectively. The aroma of decay could arise due to the activity of microorganisms. The activity of microorganisms can cause a decrease in physical qualities such as texture (Masillia *et al*., 2009). Salak is a commodity that is easy to experience damage that occurs either because of physical, mechanical or microbiological influences (Sutrisniati, 1998). In general salak pondoh is able survive stored at room temperature for 7–12 days (Atmaja *et al*., 2010).

Amazingly, at the last day of storage, 5% salak was unable to be detected decay aroma representing the variation of salak ability to hinder the decay aroma.

Conclusion

The aroma of decay initially occurred on the middle stage of preservation then the percentage of decayed salak was elevated until the end of stage.

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