

**PHYSICOCHEMICAL AND MICROBIOLOGICAL
CHARACTERISTICS OF CHERRY TOMATO (*Solanum lycopersicum*
L. var cerasiforme) TREATED WITH VARIOUS WASHING
SOLUTIONS**

***KARAKTERISTIK FISILOGIA DAN MIKROBIOLOGIS TOMAT
CERI (*Solanum lycopersicum L. var cerasiforme*) YANG DICUCI
DENGAN BEBERAPA JENIS LARUTAN PENCUCI***

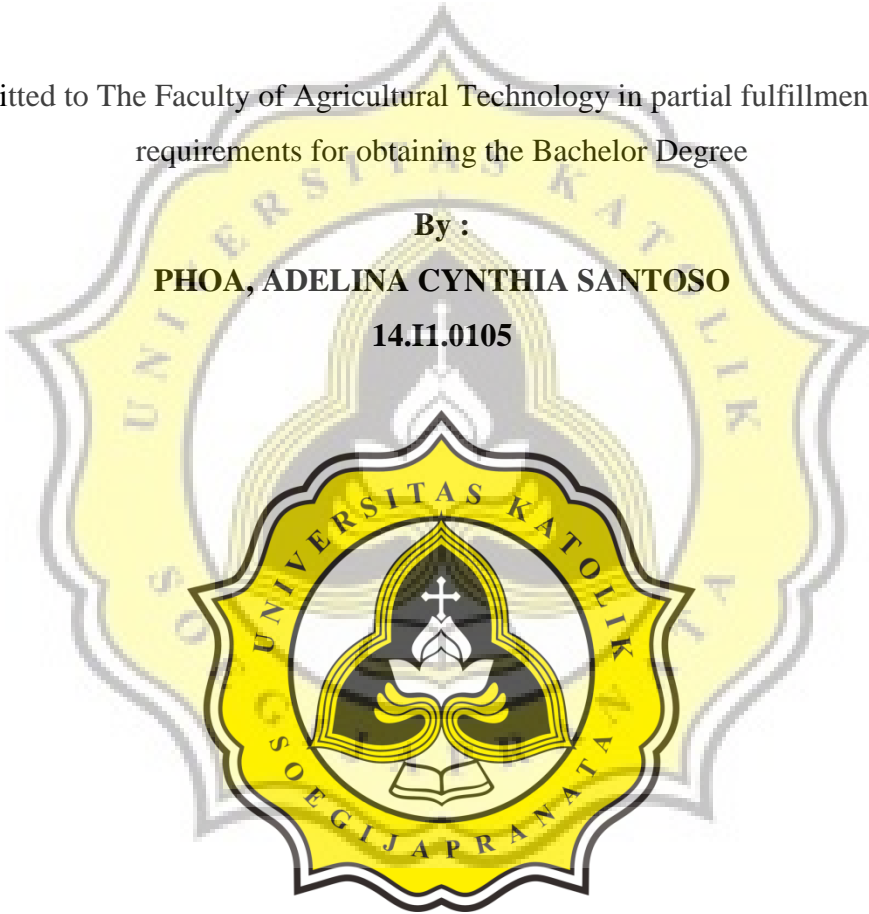
BACHELOR THESIS

Submitted to The Faculty of Agricultural Technology in partial fulfillment of the
requirements for obtaining the Bachelor Degree

By :

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14.II.0105



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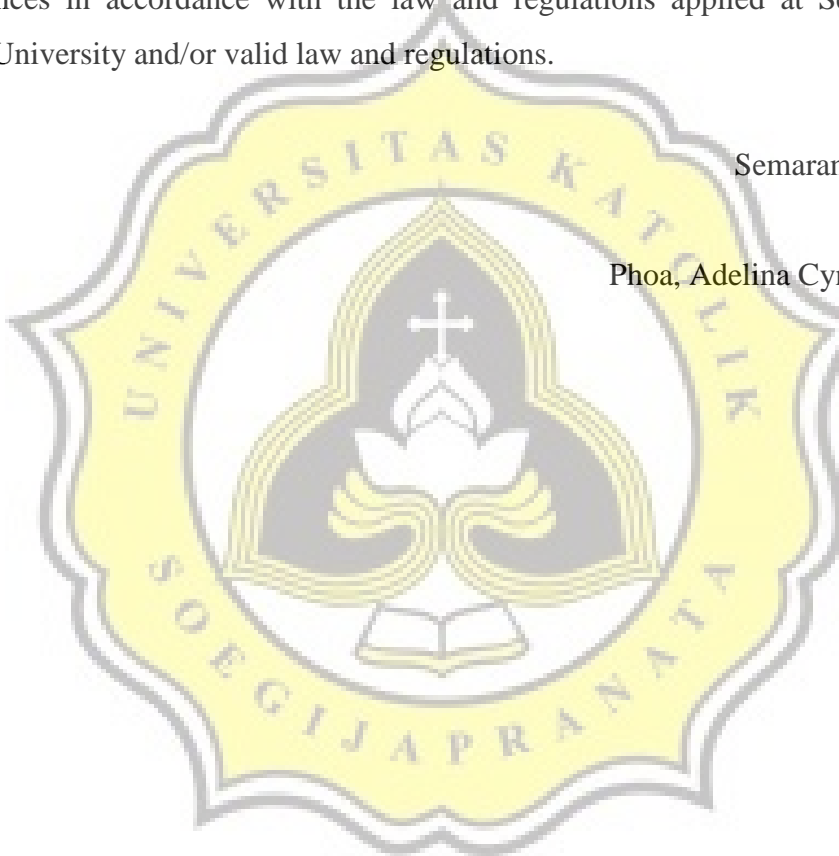
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I hereby declare that the thesis entitled “**Physicochemical and Microbiological Characteristic of Cherry Tomato (*Solanum lycopersicum L. var cerasiforme*) Treated with Various Washing Solutions**” contains no work that ever proposed to acquire a bachelorship title in a University, and along to my knowledge, there is no work ever written or published by others, except the ones used as references in this thesis and mentioned in the list of references. If it is proven in the future that partially or whole thesis is the result of plagiarism, therefore I will be willing to be revoked with all the consequences in accordance with the law and regulations applied at Seogijapranata Catholic University and/or valid law and regulations.

Semarang, June 2018

Phoa, Adelina Cynthia Santoso

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SUMMARY

Tomato is one of the most widely cultivated crops throughout the world including Indonesia. Tomato not only has a good taste but also rich in vitamins, minerals, and bioactive compounds which is good for human health. Tomato is divided into several varieties and one of them is cherry tomato. This variety of tomato has red colour and very sweet taste. It has high economical value so that preventing early damage during post harvest handling and storage is necessary. Washing cherry tomato using disinfectant can increase its shelf life. Disinfectant can be used to kill microorganism which might reduce the cherry tomato quality. The objectives of this research was to investigate the efficacy of different washing solutions such as tap water, 100 ppm chlorinated water, Acidic Electrolyzed Water (AEW), and Basic Electrolyzed Water (BEW) in extending the shelf life and maintaining the quality of cherry tomato based on physicochemical and microbiological characteristics. Cherry tomatoes were washed twice in orbital shaker at 150 RPM for 5 minutes. Afterwards, cherry tomatoes were stored in polyethylene terephthalate (PET) plastics for 14 days at room temperature storage (25°C) and relative humidity (RH) of 60-70%. The changes on cherry tomato's freshness were investigated by physical analysis (weight loss, texture, colour difference), chemical analysis (water content, total soluble solids, titratable acidity), and microbiological testing (total plate count and direct plating) in every day. The results of this research showed that different washing solutions i.e. AEW, 100 ppm chlorinated water, BEW, and tap water, significantly affected the physical characteristics (weight loss and texture) and microbiological characteristics but did not affect significantly the sensory (colour and appearance) and chemical characteristics of the tomatoes. These results indicated that AEW was the best washing solution which could delay the ripening stage more effectively with minimum quality losses. The shelf life of cherry tomatoes could be extended up to 10 days by treating the fruit in AEW.

RINGKASAN

Tomat adalah salah satu tanaman yang paling banyak dibudidayakan di seluruh dunia termasuk Indonesia. Buah tomat tidak hanya memiliki rasa yang enak namun juga kaya akan vitamin, mineral, dan senyawa bioaktif yang baik untuk kesehatan manusia. Buah tomat terbagi menjadi beberapa varietas dan salah satunya adalah tomat ceri. Varietas tomat ini berwarna merah dan memiliki rasa yang sangat manis. Tomat ceri juga memiliki nilai ekonomi yang tinggi sehingga pencegahan kerusakan awal diperlukan. Pencucian tomat ceri dengan menggunakan disinfektan dapat meningkatkan umur simpan. Hal tersebut dikarenakan disinfektan dapat membunuh mikroorganisme yang merupakan penyebab utama dalam penurunan kualitas tomat ceri. Tujuan penelitian ini adalah untuk mengetahui efektivitas dari larutan pencuci yang berbeda seperti air kran, air klorin 100 ppm, Acidic Electrolyzed Water (AEW), dan Basic Electrolyzed Water (BEW) dalam memperpanjang umur simpan dan mempertahankan kualitas tomat ceri berdasarkan karakteristik fisikokimia dan mikrobiologi. Tomat ceri dicuci dengan menggunakan orbital shaker pada kecepatan 150 RPM selama 5 menit. Proses pencucian dilakukan sebanyak 2 kali. Setelah itu, tomat ceri disimpan dalam kemasan plastik polyethylene terephthalate (PET) selama 14 hari pada suhu ruang (25°C) dan RH 60-70%. Perubahan tingkat kesegaran buah tomat diketahui dengan melakukan pengujian fisik (susut bobot, tekstur, warna), pengujian kimia (kadar air, total padatan terlarut, kadar asam tertitrasi), dan pengujian mikrobiologi (Total Plate Count dan Direct Plating) setiap harinya. Hasil penelitian menunjukkan bahwa perbedaan larutan pencuci seperti air kran, air klorin 100 ppm, AEW, dan BEW berpengaruh nyata terhadap karakteristik fisik (susut bobot dan tekstur) dan mikrobiologis tetapi tidak berpengaruh nyata terhadap karakteristik sensori (warna dan penampakan) dan karakteristik kimia. Hasil penelitian yang diperoleh menunjukkan bahwa AEW adalah larutan pencuci terbaik yang dapat menunda proses pematangan buah secara efektif dengan penurunan kualitas yang rendah. Umur simpan tomat ceri dapat diperpanjang hingga 10 hari dengan mencucinya menggunakan AEW.

PREFACE

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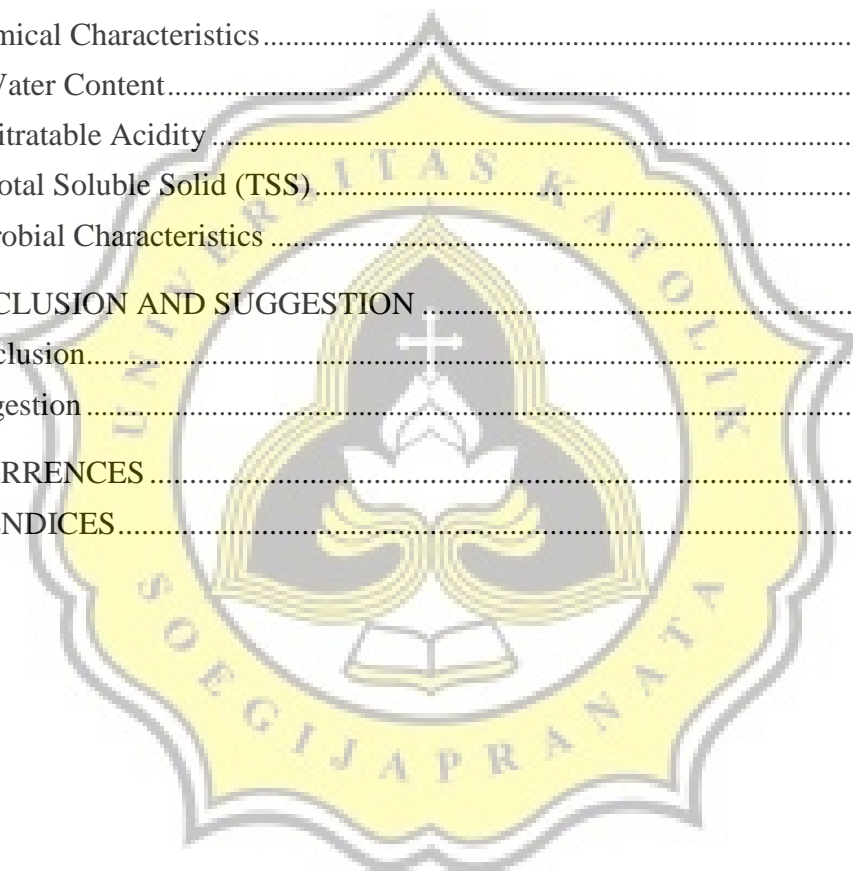
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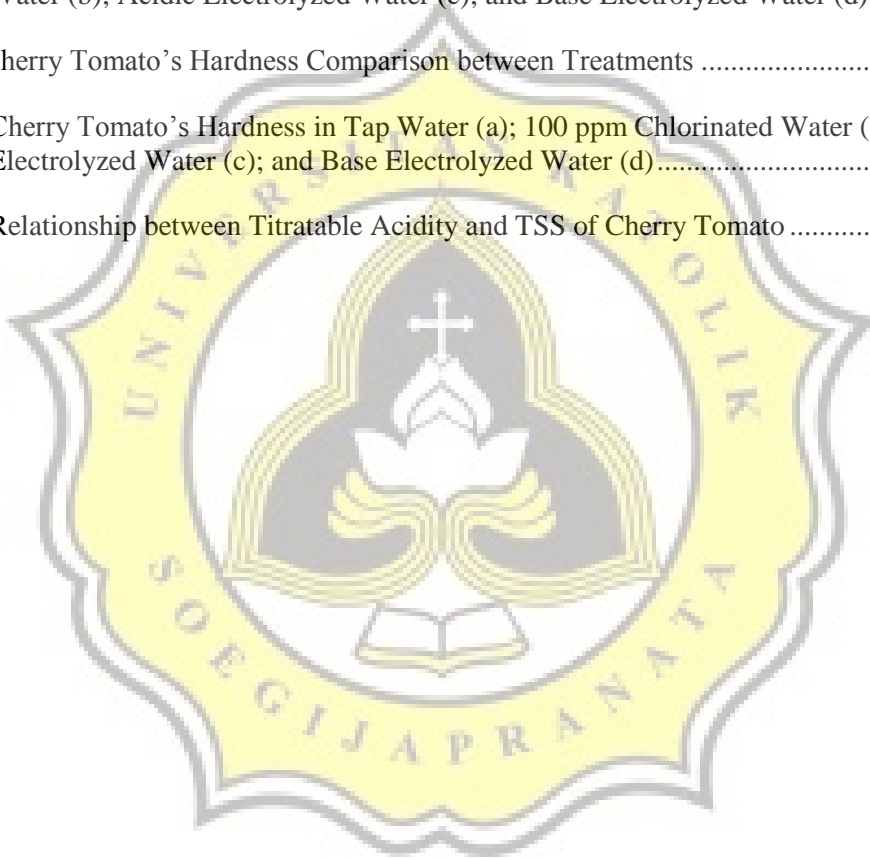


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