DETERMINATION OF ANTIOXIDANT IN TOMATO (*SOLANUM LYCOPERSICUM L.*) USING FERRIC REDUCING ANTIOXIDANT POWER (FRAP) ASSAY

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ABSTRACT

DETERMINATION OF ANTIOXIDANT IN TOMATO (SOLANUM LYCOPERSICUM L.) USING FERRIC REDUCING ANTIOXIDANT POWER (FRAP) ASSAY

Tomatoes (*Solanum Lycopersicum L)* is one of the most consumed fruits in the world that plays an important role in disease prevention. The purposes of this study were to determine the amount antioxidant of tomato and the effect of temperature and cook duration on the antioxidant of tomatoes using Ferric Reducing Antioxidant Power (FRAP) assay. UV-Vis spectrophotometer was used in this study to analyze tomato sample. The antioxidant capacity of tomatoes which was 169.93±0.92 μM Fe(II)/mL. For temperature study, tomatoes exhibited the greatest antioxidant at 100°C and the lowest amount of antioxidant at room temperature. Thus, it could be concluded that, the optimum temperature for the antioxidant extraction in tomatoes was 100°C. Besides, for cook duration study, it showed increasing of the antioxidant capacity from 5 minutes to 15 minutes before dropped at 20 minutes. Thus, most suitable cook duration of tomato in order to gain a greatest amount of antioxidant was 15 minute.

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INTRODUCTION

1.1 Background of Study

Cultivated tomato (*Solanum Lycopersicum L.*) that belongs to the Solanaceae family is one of the foods that highly consumed in the globe after maize, rice, wheat, potatoes, cassava and soybean. Hence, it is a major source of the dietary nutrients and antioxidant. During the last 20 years ago, America and Europe are the majors producer of the tomato but today Asia dominated the market with China ranking first and followed in declining request by India, USA, Turkey, Egypt, Iran, Italy, Brazil, Spain, and Uzbekistan (Bergougnoux, 2014).

Amazingly, the Northern Europe with unfavorable climate condition for the tomato also becomes the higher yielder of that fruit (Bergougnoux, 2014). There are around 7500 types of tomatoes in the world. It consists of Heirloom tomatoes or known as traditional tomatoes such as Cherokee purple and green grape tomato. But, due to the development in the agro technology nowadays, there are a few hybrid species that had been found