

**EFFECT OF SOLAR TUNNEL DRYING AND CHEMICAL  
BLANCHING SOLUTIONS ON THE PHYSICOCHEMICAL  
QUALITY OF STEVIA (*STEVIA REBAUDIANA*) LEAVES AND ITS  
APPLICATION IN GREEN TEA – STEVIA DRINK**

**EFEK PENGERINGAN *SOLAR TUNNEL DRYER* DAN LARUTAN  
*BLANCHING* TERHADAP KUALITAS FISIKOKIMIWI DAUN  
STEVIA (*STEVIA REBAUDIANA*) DAN APLIKASINYA PADA  
MINUMAN TEH HIJAU – STEVIA**

**THESIS**

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

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SEMARANG**

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## SUMMARY

Nowadays, consumers are very concerned about health benefits of food products besides its taste and appearance. Tea is one of the most favourite drinks in the world, including in Indonesia. Normally, all people tend to like a sweet taste including in the tea. Sweet tea certainly causes many negative health effects, such as obesity and diabetes. Of all the existing types of tea, green tea is the best kind of tea because it has a lot of significant positive effects on human health due to the highest antioxidant activity in the form of catechins contained compared to the other tea. There is a natural sweetener that can address this problem, that is *Stevia rebaudiana*. Dried stevia leaf has many benefits. Besides its level of sweetness is 10-15 times sweeter than sucrose, it is also does not produce calories, does not cause tooth decay, and effectively regulates blood sugar in people with diabetes and hypoglycemia, bringing it toward more normal levels. The purpose of the research is to optimize the drying process of *Stevia rebaudiana* fresh leaves using Solar Tunnel Dryer, select the best chemical blanching solution which could preserve the benefits of *Stevia rebaudiana* leaves like its sweetness intensity and also antioxidant activity. Besides that, the quality and acceptability of the green tea stevia infusion were also analyzed. Blanching process as a pre-treatment for the fresh stevia leaves prior to the drying process turned out to have a significant effect to the dried stevia leaves. Sodium bicarbonate and calcium chloride were used as chemical blanching with three different concentration: 0.1%, 0.5% and 1%. It was found out that calcium chloride 1% treatment as the best treatment hence it could preserve the quality of *Stevia rebaudiana* leaves in terms of its antioxidant activity, sweetness level as well as color. For sensory analysis, dried stevia leaves with concentration of 0.4% added to the green tea was the most preferable samples for the panelists. Although *Stevia rebaudiana* has some shortage in sensory like its bitter and astringent aftertaste, it is still showed a great potential to replace sucrose in our daily life consumption.

*Keywords: Health Benefits, Green Tea, Stevia rebaudiana, Pre-treatment, Drying*

## RINGKASAN

Pada zaman ini, konsumen sangat memperhatikan manfaat fungsional dari produk pangan yang dikonsumsi disamping rasa dan penampilan. Teh merupakan salah satu minuman terfavorit di dunia, termasuk Indonesia. Lazimnya, konsumen lebih menyukai mengkonsumsi teh yang ditambahkan gula. Teh manis memiliki banyak efek kesehatan yang negatif seperti obesitas dan diabetes. Dari semua jenis teh, teh hijau merupakan teh terbaik karena memiliki banyak manfaat fungsional yang baik untuk kesehatan. Hal ini dikarenakan tingginya aktivitas antioksidan dalam bentuk katekin. Ada satu pemanis yang dapat menjawab masalah ini yaitu Stevia rebaudiana. Daun stevia kering memiliki banyak manfaat. Selain tingkat kemanisannya yang 10 -15 kali lebih tinggi dibanding sukrosa, stevia tidak menghasilkan kalori, tidak menyebabkan kerusakan gigi, dan efektif menormalkan gula darah seseorang yang mengalami diabetes atau hipoglisemia. Tujuan dari penelitian ini adalah untuk mengoptimasi proses pengeringan daun stevia segar menggunakan *Solar Tunnel Dryer*, memilih larutan *blanching* kimia terbaik yang bisa menjaga keunggulan dari daun stevia seperti intensitas kemanisan dan aktivitas antioksidannya. Selain itu, kualitas serta penerimaan dari produk teh hijau stevia juga dianalisa. Proses *blanching* sebagai perlakuan awal untuk daun stevia segar sebelum masuk ke proses pengeringan ternyata memiliki efek signifikan terhadap kualitas dari produk daun stevia kering. Sodium bikarbonat dan kalsium klorida digunakan sebagai larutan *blanching* dengan tiga konsentrasi yang berbeda: 0.1%, 0.5% and 1%. Diketahui bahwa perlakuan kalsium klorida 1% merupakan perlakuan terbaik karena dapat menjaga kualitas daun Stevia rebaudiana dalam hal aktivitas antioksidan, kemanisan dan warna. Untuk analisa sensori, daun stevia kering dengan konsentrasi penambahan 0.4% dengan teh hijau adalah yang paling disukai panelis. Meskipun Stevia rebaudiana memiliki kelemahan dalam sensori seperti memiliki aftertaste pahit dan astringent, namun stevia menunjukkan potensi besar untuk dapat menggantikan sukrosa dalam konsumsi sehari-hari.

*Keywords: Manfaat Fungsional, Teh Hijau, Stevia rebaudiana, Perlakuan Awal, Pengeringan*

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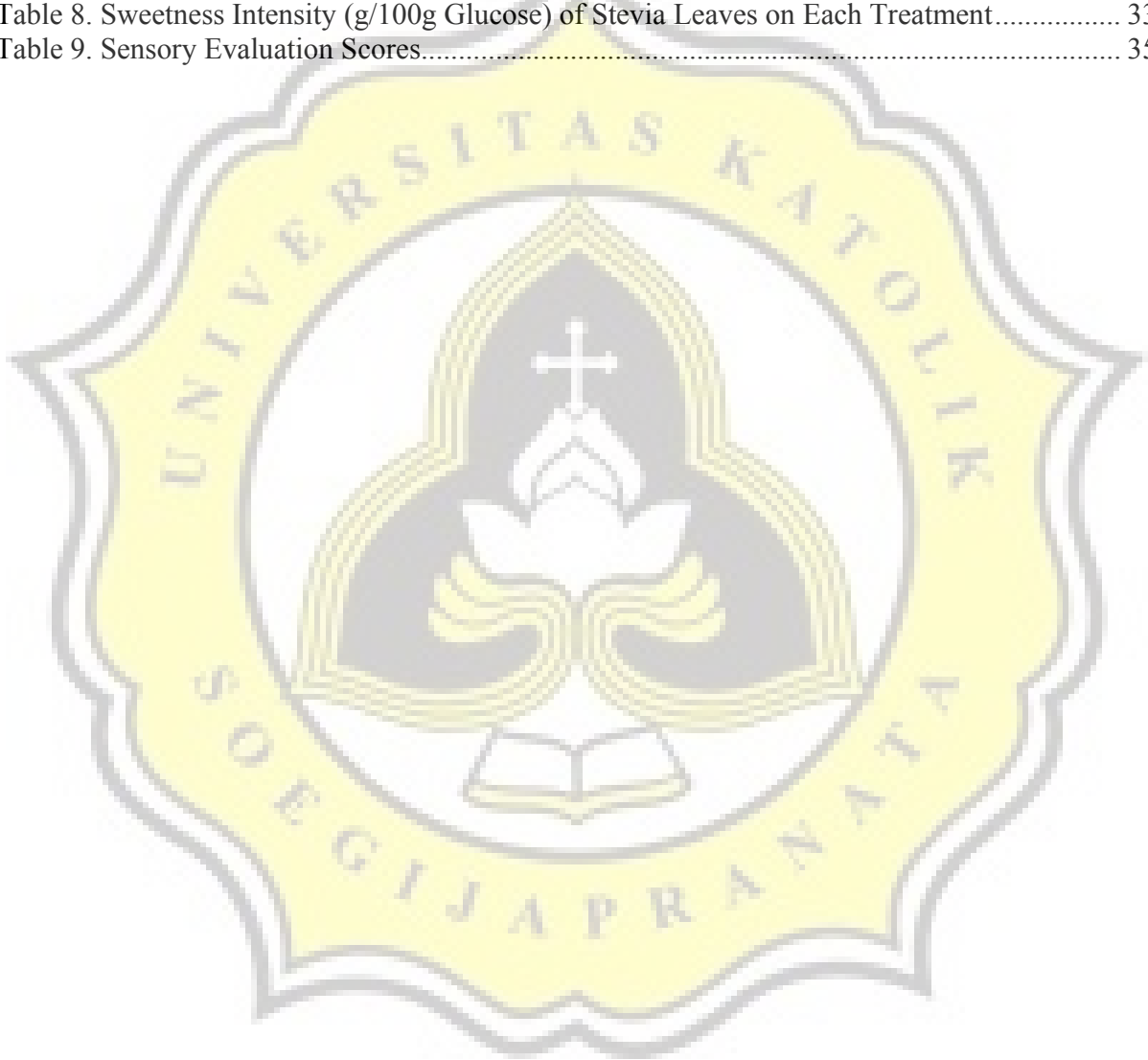
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