



Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author: Tatas Hardo Panintingjati Brotosu...
Assignment title: Evaluasi Jurnal
Submission title: Analysis on the Chlorophyll Conten..
File name: 14_Procedia_Chemistry_Elsevier-...
File size: 589.78K
Page count: 7
Word count: 3,052
Character count: 16,758
Submission date: 19-Jan-2018 09:56AM (UTC+0700)
Submission ID: 904210496

Available online at www.sciencedirect.com
 ScienceDirect
 ELSEVIER
Procedia Chemistry 14 (2015) 225 – 231


2nd Humboldt Kolleg in conjunction with International Conference on Natural Sciences, HK-ICONS 2014

Analysis on the Chlorophyll Content of Commercial Green Leafy Vegetables

Leenawaty Limantara^{a*}, Martin Dettling^{a,b}, Renny Indrawati^a, Indriatmoko^a, Tatas Hardo Panintingjati Brotosudarmo^a

^aMa Chung Research Center for Photosynthetic Pigments, Universitas Ma Chung, Villa Pancasila Tidar N1, Malang 65151, Indonesia
^bSRH Distance Education University Heidelberg, Lange Strasse 19, Heidelberg 68499, Germany

Abstract

The objectives of the present study were to evaluate the chlorophyll content of green leafy vegetables found commercially and carry out a comparative investigation between *in vivo* and *in vitro* data. The chlorophyll of green leafy vegetable can be used as visible parameters of the quality of vegetables during storage, since it will be degraded gradually along with post-harvest senescence. Therefore, the development of reliable *in vivo* chlorophyll measurement should be advantageous rather than visual observation for the purpose of quality control and product sanitation. Here, the existence of chlorophylls in ten green leafy vegetables were reported as SPAD values of a handheld SPAD-502 chlorophyll meter and % N of an Agriquest CCN-6000 nitrogen meter (*in vivo* data), as well as total peak area data of HPLC measurement for chlorophyll *a* and *b* after exhaustive extraction using methanol (*in vitro* data). Both *in vivo* and *in vitro* measurement gave comparable grouping of vegetables with high and low content of chlorophyll. Moreover, correlation plots between SPAD values and total peak area of HPLC showed adequate linear correlation ($R^2 > 0.7$), revealing the potency of *in vivo* observation for the prediction of actual chlorophyll content in commercial leafy vegetables. SPAD values and % N presented strong linear relationship ($R^2 > 0.9$), in which SPAD-meter performed better detection at very low values. The calibration curve for each species of vegetable should be substantial to overcome the limiting factors of *in vivo* observation, such as leaf size, tissue thickness, and variation of chloroplast distribution.

© 2015 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).
Peer-review under responsibility of the Scientific Committee of HK-ICONS 2014

Keywords: Chlorophyll, HPLC, leafy vegetable, nitrogen meter, SPAD

* Corresponding author. Tel.: +62 341 550 171; fax: +62 341 550 175.
E-mail address: leenawaty_limantara@machung.ac.id

1876-6196 © 2015 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).
Peer-review under responsibility of the Scientific Committee of HK-ICONS 2014
doi:10.1016/j.proche.2015.03.032

Analysis on the Chlorophyll
Content of Commercial Green
Leafy Vegetables, Procedia
Chemistry Vol. 14 (2015) 1-516,
Hal. 225-231

by Tatas Hardo Panintingjati Brotosudarmo

Submission date: 19-Jan-2018 09:56AM (UTC+0700)

Submission ID: 904210496

File name: 14._Procedia_Chemistry_Elsevier-ICONS-Analisy-Limantara.pdf (589.78K)

Word count: 3052

Character count: 16758

Analysis on the Chlorophyll Content of Commercial Green Leafy Vegetables, Procedia Chemistry Vol. 14 (2015) 1-516, Hal. 225-231

ORIGINALITY REPORT

21%

SIMILARITY INDEX

13%

INTERNET SOURCES

16%

PUBLICATIONS

9%

STUDENT PAPERS

PRIMARY SOURCES

1

ira.le.ac.uk

Internet Source

2%

2

Submitted to CSU, Long Beach

Student Paper

2%

3

Brotosudarmo, Tatas Hardo Panintingjati, Leenawaty Limantara, Heriyanto, and Monika Nur Utami Prihastyanti. "Adaptation of the Photosynthetic Unit of Purple Bacteria to Changes of Light Illumination Intensities", Procedia Chemistry, 2015.

Publication

2%

4

Submitted to Kahramanmaraş Sütçü İmam University

Student Paper

2%

5

J. Uddling. "Evaluating the relationship between leaf chlorophyll concentration and SPAD-502 chlorophyll meter readings", Photosynthesis Research, 03/21/2007

Publication

1%

Ferrante, A.. "Chlorophyll a fluorescence