

Lampiran 2 Hasil Determinasi Tanaman Daun Pepaya Jepang

HERBARIUM JATINANGOR
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JURUSAN BIOLOGI FMIPA UNPAD
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LEMBAR IDENTIFIKASI TUMBUHAN

No. 33/HB/01/2023.

Herbarium Jatinangor, Laboratorium Taksonomi Tumbuhan, Jurusan Biologi FMIPA UNPAD, dengan ini menerangkan bahwa:

Nama : Firda Setiawati
 NIP/NIM : 191FF03002
 Instansi : Universitas Bhakti Kencana.
 Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 10 Januari 2023
 Lokasi : Bandung.

Hasil Identifikasi

Nama Ilmiah : *Cnidoscolus aconitifolius* (Mill.) I.M. Johnst.
 Sinonim : *Jatropha aconitifolia* Mill.
 Nama Lokal : Daun Pepaya Jepang
 Suku/Famili : Euphorbiaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom : Plantae
 Divisi : Magnoliophyta
 Class : Magnoliopsida
 Ordo : Malpighiales
 Famili : Euphorbiaceae
 Genus : *Cnidoscolus*
 Species : *Cnidoscolus aconitifolius* (Mill.) I.M. Johnst.

Referensi:

Backer, C. A. and Bakhuizen v/d Brink R. C Jr. 1963. *Flora of Java*. Wolter-Noordhoff NV. Groningen.
 Cronquist, Arthur. 1981. *An Integrated System of Classification of Flowering Plants*. Columbia University Press. New York
 The Plant List Website *DuniaTumbuhan*. <http://www.theplantlist.org/tp1.1/record/kew-158489>.

Jatinangor, 12 Januari 2023.

Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA-UNPAD

Drs. Joko Kusmoro, M.P.
 NIP. 19600801 199101 1 001

Lampiran 3 Sertifikat Bahan Pentiter



Certificate of Analysis

1.03028.0000 **2,6-Dichlorophenol-indophenol sodium salt dihydrate GR for analysis for the determination of ascorbic acid**
Batch **K51365328**

	Spec. Values		Batch Values	
Assay (perchloric acid titration, calculated on dried substance)	≥ 98	%	101.8	%
Identity (IR-spectrum)	passes test		passes test	
TLC-Test	passes test		passes test	
Foreign coloring agents	passes test		passes test	
Loss on drying (120 °C)	≤ 12.0	%	5.7	%

Date of release (DD.MM.YYYY) 02.05.2019
 Minimum shelf life (DD.MM.YYYY) 30.04.2024

Ioannis Chirtomatsidis
 Responsible laboratory manager quality control

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EMD Millipore Corporation - a subsidiary of Merck KGaA, Darmstadt, Germany

400 Summit Drive, Burlington, MA 01803, USA, Phone +1 (781) 533-6000

SALSA Version 936918 / 0903006411860 / Date: 02.05.2019

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Lampiran 4 Sertifikat bahan Baku



Certificate of Analysis

1.00468.0500 L(+)-Ascorbic Acid for analysis EMSURE® ACS, Reag. Ph Eur
 Batch K52734895

	Spec. Values		Batch Values	
Assay (Iodometric)	99.0 - 100.5	%	99.9	%
Identity (IR-spectrum)	conforms		conforms	
Appearance	white or almost white, crystalline powder		white or almost white, crystalline powder	
Appearance of solution (50 g/l CO ₂ -free water)	clear (≤ 3 NTU) and not so intense in colour than reference solution BY ⁺		clear (≤ 3 NTU) and not so intense in colour than reference solution BY ⁺	
pH (50 g/l CC-free water)	2.1 - 2.6		2.4	
Spec. rotation [α] _D ²⁰ (100 g/l, water)	+20.5 - +21.5	°	+20.9	°
Chloride (Cl)	≤ 50	ppm	≤ 50	ppm
Sulfate (SO ₄)	≤ 20	ppm	≤ 20	ppm
Cu (Copper)	≤ 5	ppm	≤ 5	ppm
Fe (Iron)	≤ 2	ppm	≤ 2	ppm
Heavy metals (ACS)	≤ 10	ppm	≤ 10	ppm
Oxalic acid	≤ 0.2	%	≤ 0.2	%
Related substances (HPLC) (Impurity C)	≤ 0.15	%	0.02	%
Related substances (HPLC) (Impurity D)	≤ 0.15	%	0.01	%
Related substances (HPLC) (unspecified impurities singly)	≤ 0.10	%	< 0.05	%
Related substances (HPLC) (sum of impurities (except impurity A and D))	≤ 0.2	%	< 0.1	%
Sulfated ash (600 °C)	≤ 0.05	%	≤ 0.05	%
Loss on Drying (105 °C)	≤ 0.1	%	< 0.1	%

Date of release (DD.MM.YYYY) 29.12.2022
 Minimum shelf life (DD.MM.YYYY) 29.12.2025

Dr. Sebastian Lips
 Responsible laboratory manager quality control

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SALSA Version 802666 (090005779213) Date: 03.09.2020

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Certificate of Analysis

1.00546.0500 meta-Phosphoric acid pieces for analysis (stabilized with sodium metaphosphate) EMSURE®
Batch S7952446

	Spec. Values		Batch Values	
Assay (acidimetric, HPO_4)	40 - 50	%	42	%
Assay (acidimetric, NaPO_3)	50 - 60	%	51	%
Identity	passes test		passes test	
Chloride (Cl)	≤ 10	ppm	≤ 10	ppm
Nitrate (NO_3)	≤ 10	ppm	≤ 10	ppm
Reducing matter (as H_2PO_3)	≤ 100	ppm	≤ 100	ppm
As (Arsenic)	≤ 1	ppm	≤ 1	ppm
Cd (Cadmium)	≤ 10	ppm	≤ 10	ppm
Co (Cobalt)	≤ 5	ppm	≤ 5	ppm
Cu (Copper)	≤ 10	ppm	≤ 10	ppm
Fe (Iron)	≤ 50	ppm	≤ 50	ppm
Mn (Manganese)	≤ 5	ppm	≤ 5	ppm
Ni (Nickel)	≤ 10	ppm	≤ 10	ppm
Pb (Lead)	≤ 10	ppm	≤ 10	ppm
Zn (Zinc)	≤ 10	ppm	≤ 10	ppm

Date of release (DD.MM.YYYY) 23.05.2020
Minimum shelf life (DD.MM.YYYY) 31.05.2025

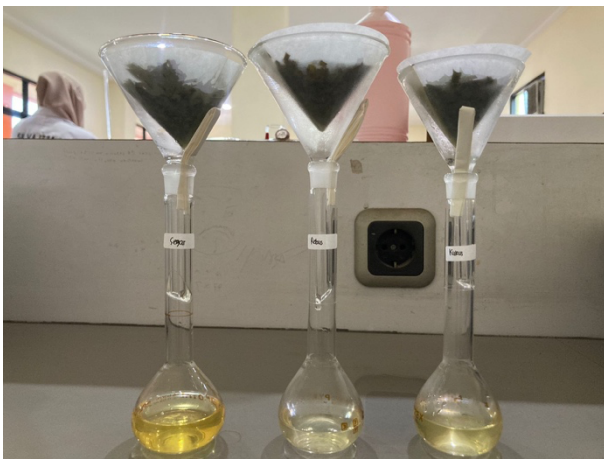
Claudia Wiegand
Responsible laboratory manager/quality control

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Lampiran 6 Sampel yang Digunakan



Gambar 1. Daun papaya jepang



Gambar 2. Filtrat daun papaya jepang



Gambar 3. Filtrat Daun Pepaya Jepang segar yang dititrasi



Gambar 4. Filtrat Daun Pepaya Jepang Kukus yang dititrasi



Gambar 5. Filtrat Daun Pepaya Jepang Rebus yang dititrasi

Lampiran 7 Data Hasil Penetapan Kadar Vitamin C dari Sampel yang Dianalisis

a. Daun Pepaya Jepang Segar

Berat Sampel (g)	Volume Titran (mL)	Volume Blanko (mL)	Kadar (mg/10g)	Kadar Rata-Rata (mg/100g)
10	15,15	0,1	13,1	131
10	15	0,1		
10	15	0,1		
10	15	0,1		
10	15,15	0,1		
10	15	0,1		

b. Daun Pepaya Jepang Kukus

Berat Sampel (g)	Volume Titran (mL)	Volume Blanko (mL)	Kadar (mg/10g)	Kadar Rata-Rata (mg/100g)
10	7,65	0,1	6,61	66,1
10	7,6	0,1		
10	7,55	0,1		
10	7,6	0,1		
10	7,6	0,1		
10	7,6	0,1		

c. Daun Pepaya Jepang Rebus

Berat Sampel (g)	Volume Titran (mL)	Volume Blanko (mL)	Kadar (mg/100g)	Kadar Rata-Rata (mg/100g)
10	2,8	0,1	2,36	23,6
10	2,8	0,1		
10	2,75	0,1		
10	2,75	0,1		
10	2,8	0,1		
10	2,8	0,1		

Lampiran 8 Data Hasil Batas Deteksi dan Batas Kuantisasi

Rumus :

Mmol 2,6-diklorofenol indofenol = Volume titrasi blangko x Molaritas

Mmol C₆H₈O₆ = 1/1 x mmol 2,6-diklorofenol indofenolMassa C₆H₈O₆ = mmol C₆H₈O₆ x BM C₆H₈O₆

%RSD = SD/rata-rata

BD = mg C₆H₈O₆ + (3 x SD)BK = mg C₆H₈O₆ + (10 x SD)

Volume Titrasi	Mmol 2,6-diklorofenol indofenol	Mmol C ₆ H ₈ O ₆	Massa C ₆ H ₈ O ₆
0,05	0,000025	0,000025	0,004403
0,05	0,000025	0,000025	0,004403
0,05	0,000025	0,000025	0,004403
0,1	0,00005	0,00005	0,008806
0,05	0,000025	0,000025	0,004403
0,1	0,00005	0,00005	0,008806
0,05	0,000025	0,000025	0,004403
0,1	0,00005	0,00005	0,008806
0,05	0,000025	0,000025	0,004403
0,1	0,00005	0,00005	0,008806
0,1	0,00005	0,00005	0,008806
0,05	0,000025	0,000025	0,004403
0,05	0,000025	0,000025	0,004403
0,1	0,00005	0,00005	0,008806
0,05	0,000025	0,000025	0,004403
0,1	0,00005	0,00005	0,008806
0,05	0,000025	0,000025	0,004403
0,1	0,00005	0,00005	0,008806
0,1	0,00005	0,00005	0,008806
0,1	0,00005	0,00005	0,008806
		Rata-Rata	0,0066045
		SD	0,002258691
		%RSD	34,1992784%
		BD	0,013380574 mg
		BK	0,029191413 mg

Lampiran 9 Data Hasil Uji Perolehan Kembali

Penambahan C ₆ H ₈ O ₆ (mg)	Volume Titration (mL)	Mmol 2,6- Diklorofenol Indofenol	Mmol C ₆ H ₈ O ₆ hasil analisis	Massa C ₆ H ₈ O ₆ hasil analisis (mg)	%Recovery
10,4	26,55	0,013275	0,013275	23,37993	96,95
10,4	26,7	0,01335	0,01335	23,51202	97,79
10,4	26,75	0,013375	0,013375	23,55605	98,22
13,1	29,8	0,0149	0,0149	26,24188	98,47
13,1	29,85	0,014925	0,014925	26,28591	98,81
13,1	29,8	0,0149	0,0149	26,24188	98,47
15,7	32,75	0,016375	0,016375	28,83965	98,71
15,7	32,85	0,016425	0,016425	28,95771	99,27
15,7	32,9	0,01645	0,01645	28,97174	99,55
				Rata-Rata	98,47
				SD	0,36
				%RSD	0,37
				Faktor Koreksi	13,54

Lampiran 10 Data Hasil Uji Ketelitian Interday

Presisi 1				
Penambahan $C_6H_8O_6$ (mg)	Volume Titration (mL)	Mmol 2,6- diklorofenol indofenol	Mmol $C_6H_8O_6$ hasil analisis	Massa $C_6H_8O_6$ hasil analisis (mg)
13,1	29,85	0,014925	0,014925	26,28591
13,1	29,85	0,014925	0,014925	26,28591
13,1	29,9	0,01495	0,01495	26,32994
13,1	29,9	0,01495	0,01495	26,32994
13,1	29,95	0,014975	0,014975	26,37397
13,1	29,95	0,014975	0,014975	26,37397
Rata-Rata				26,32994
SD				0,03938163
%RSD				0,14956976
Presisi 2				
Penambahan $C_6H_8O_6$ (mg)	Volume Titration (mL)	Mmol 2,6- diklorofenol indofenol	Mmol $C_6H_8O_6$ hasil analisis	Massa $C_6H_8O_6$ hasil analisis (mg)
13,1	29,8	0,0149	0,0149	26,24188
13,1	29,85	0,014925	0,014925	26,28591
13,1	29,9	0,01495	0,01495	26,32994
13,1	29,8	0,0149	0,0149	26,24188
13,1	29,85	0,014925	0,014925	26,28591
13,1	29,8	0,0149	0,0149	26,24188
Rata-Rata				26,2712333
SD				0,03595034
%RSD				0,136843

Presisi 3				
Penambahan C ₆ H ₈ O ₆ (mg)	Volume Titration (mL)	Mmol 2,6- diklorofenol indofenol	Mmol C ₆ H ₈ O ₆ hasil analisis	Massa C ₆ H ₈ O ₆ hasil analisis (mg)
13,1	29,75	0,014875	0,014875	26,19785
13,1	29,85	0,014925	0,014925	26,28591
13,1	29,9	0,01495	0,01495	26,32994
13,1	29,9	0,01495	0,01495	26,32994
13,1	29,8	0,0149	0,0149	26,24188
13,1	29,95	0,014975	0,014975	26,37397
Rata-Rata				26,2932483
SD				0,06481041
%RSD				0,24649067

Lampiran 11 Data Hasil Uji Ketelitian Intraday

Hari	Penambahan C ₆ H ₈ O ₆ (mg)	Volume Titration (mL)	Mmol 2,6- diklorofenol indofenol	Mmol C ₆ H ₈ O ₆ hasil analisis	Massa C ₆ H ₈ O ₆ hasil analisis (mg)
1	13,1	29,8	0,0149	0,0149	26,24188
	13,1	29,85	0,014925	0,014925	26,28591
	13,1	29,9	0,01495	0,01495	26,32994
	13,1	29,8	0,0149	0,0149	26,24188
	13,1	29,85	0,014925	0,014925	26,28591
	13,1	29,8	0,0149	0,0149	26,24188
2	13,1	29,85	0,014925	0,014925	26,28591
	13,1	29,85	0,014925	0,014925	26,28591
	13,1	29,9	0,01495	0,01495	26,32994
	13,1	29,9	0,01495	0,01495	26,32994
	13,1	29,95	0,014975	0,014975	26,37397
	13,1	29,95	0,014975	0,014975	26,37397
3	13,1	29,75	0,014875	0,014875	26,19785
	13,1	29,85	0,014925	0,014925	26,28591
	13,1	29,9	0,01495	0,01495	26,32994
	13,1	29,9	0,01495	0,01495	26,32994
	13,1	29,8	0,0149	0,0149	26,24188
	13,1	29,95	0,014975	0,014975	26,37397
				Rata-Rata	26,2981406
				SD	0,04671413
				%RSD	0,14956976

Lampiran 12 Hasil Plagiarisme

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Lampiran 14 Kartu Bimbingan

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