

DAFTAR LAMPIRAN

Lampiran 1 Hasil determinasi tanaman rosela

HERBARIUM JATINANGOR
LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA UNPAD
 Gedung D2-212, Jl. Raya Bandung Sumedang Km 21 Jatinangor
 Telp. 089689992695, email: phanerogamae@yahoo.com

LEMBAR IDENTIFIKASI TUMBUHAN
 No.20/HB/06/2024.

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

Nama : Faudzi Nurrahman Hakim
 NIM/NIDN : 201FF03098
 Instansi : Universitas Bhakti Kencana
 Lokasi : Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 04 Juni 2024.

Hasil Identifikasi

Nama Ilmiah : *Hibiscus sabdariffa* L.
 Sinonim : *Abelmoschus cruentus* (Bertol.) Walp.
 Nama Lokal : Tanaman Rosela
 Suku/Famili : Malvaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom : Plantae
 Divisi : Magnoliophyta
 Class : Magnoliopsida
 Ordo : Rosales
 Famili : Malvaceae
 Genus : *Hibiscus*
 Species : *Hibiscus sabdariffa* L.

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/tp11.1/record/kew-158489>.

Jatinangor, 06 Juni 2024.

Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
 JURUSAN BIOLOGI FMIPA-UNPAD

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

Lampiran 2 Hasil determinasi tanaman katuk

HERBARIUM JATINANGOR
LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA UNPAD
 Gedung D2-212, Jl. Raya Bandung Sumedang Km 21 Jatinangor
 Telp. 089689992695, email: phanerogamae@yahoo.com

LEMBAR IDENTIFIKASI TUMBUHAN

No.21/HB/06/2024.

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

Nama : Faudzi Nurrahman Hakim
 NIM/NIDN : 201FF03098
 Instansi : Universitas Bhakti Kencana
 Lokasi : Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 04 Juni 2024.

Hasil Identifikasi

Nama Ilmiah : *Sauropus androgynus* (L.) Merr.
 Sinonim : *Sauropus albicans* Blume
 Nama Lokal : Daun Katuk
 Suku/Famili : Euphorbiaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom	Plantae
Divisi	Magnoliophyta
Class	Magnoliopsida
Ordo	Malpighiales
Famili	Euphorbiaceae
Genus	<i>Sauropus</i>
Species	<i>Sauropus androgynus</i> (L.) Merr.

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 Dunia Tumbuhan. <http://www.theplantlist.org/tpl1.1/record/kew-158489>.

Jatinangor, 06 Juni 2024.

Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA-UNPAD

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

Lampiran 3 Hasil determinasi tanaman kumis kucing

HERBARIUM JATINANGOR
LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA UNPAD
 Gedung D2-212, Jl. Raya Bandung Sumedang Km 21 Jatinangor
 Telp. 089689992695, email: phanerogamae@yahoo.com

LEMBAR IDENTIFIKASI TUMBUHAN
 No.22/HB/06/2024.

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

Nama : Faudzi Nurrahman Hakim
 NIM/NIDN : 201FF03098
 Instansi : Universitas Bhakti Kencana
 Lokasi : Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 04 Juni 2024.

Hasil Identifikasi

Nama Ilmiah : *Orthosiphon aristatus* (Blume) Miq.
 Sinonim : *Orthosiphon aristatus* var. *Aristatus*
 Nama Lokal : Kumis kucing
 Suku/Famili : Lamiaceae

Klasifikasi (Hirarki Taksonomi)

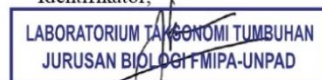
Kingdom : Plantae
 Divisi : Magnoliophyta
 Class : Magnoliopsida
 Ordo : Lamiales
 Famili : Lamiaceae
 Genus : *Orthosiphon*
 Species : *Orthosiphon aristatus* (Blume) Miq.

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 Dunia Tumbuhan. <http://www.theplantlist.org/tpl1.1/record/kew-158489>.

Jatinangor, 06 Juni 2024.

Identifikator,

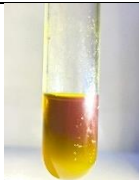
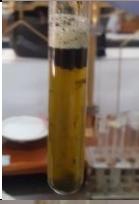


Drs. Joko Kusmoro, M.P.
 NIP. 19600801 199101 1 001

Lampiran 4 Hasil skrining fitokimia ekstrak bunga rosela

Pengujian		Hasil	Gambar	
Alkaloid	Mayer	(-)		
	Dragendorf	(-)		
Flavonoid		(+)		
Saponin		(+)		
Tanin		(+)		
Speroid/triterpenoid		(+)		

Lampiran 5 Hasil skrining fitokimia ekstrak daun katuk

Pengujian		Hasil	Gambar	
Alkaloid	Mayer	(+)		
	Dragendorff	(+)		
Flavonoid		(+)		
Saponin		(+)		
Tanin		(+)		
Speroid/triterpenoid		(+)		

Lampiran 6 hasil skrining fitokimia ekstrak daun kumis kucing

Pengujian		Hasil	Gambar	
Alkaloid	Dragendroff	(+)		
	Mayer	(+)		
	Wagner	(+)		
Flavonoid		(+)		
Saponin		(+)		
Tanin		(+)		
Speroid/triterpenoid		(+)		

Lampiran 7 COA laktosa



DFE Pharma GmbH & Co. KG / PO Box 20 21 20 / D-47568 Goch

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0811342880-900001-20221010-133649-2006-3420_FONT_01-000001

Certificate of Analysis

Customer number	: 160560	Lot/ Batchnumber	: 23174701
Delivery number	: 811342880	Date of production	: 03.06.2022
Delivery Date	: 24.10.2022	Expiry date	: 01.06.2025
Material number	: 0743826	Order number	: 15452851
Material description	: HMS Impalpable (NZ)		
	Milled lactose monohydrate		
	USP-NF, Ph.Eur., JP		
	Bag, PE liner, 25 kg net		

Analysis

Chemical & Physical				
Characteristic	Method of analysis	Unit	Specification	Results
Infrared absorption spectrum / Id A	USP-NF; Ph.Eur.; JP		Conforms to reference	Pass
Water / Id D Ph.Eur.	USP-NF; Ph.Eur.; JP	% (m)	4.5-5.5	5.1
Appearance of solution	Ph.Eur.		Not more intensely coloured than ref BY7	Pass
Lactose colour of sol.	USP-NF; JP		Nearly colourless	Pass
Lactose clarity of sol.	USP-NF; Ph.Eur.; JP		Clear	Pass
UV-Abs. 1% sol. 210-220 nm	USP-NF; Ph.Eur.; JP		0.00-0.25	0.02
UV-Abs. 1% sol. 270-300 nm	USP-NF; Ph.Eur.; JP		0.00-0.07	0.00
UV-Abs. 10% sol. 400 nm	USP-NF; Ph.Eur.; JP		0.00-0.04	0.00
Acidity (0.1N NaOH/6g)	USP-NF; Ph.Eur.; JP	ml	0.0-0.4	0.2
Specific optical rotation (anhydrous bas	USP-NF; Ph.Eur.; JP	Degree	54.4-55.9	55.1
Heavy Metals	USP-NF; Ph.Eur.; JP		max 5 ppm	Pass
Loss on Drying (2 hrs, 80°C)	USP-NF; JP	% (m)	0.0-0.5	0.1
Residue on Ignition / Sulfated ash	USP-NF; Ph.Eur.; JP	% (m)	0.0-0.1	<0.1

Microbiological				
Characteristic	Method of analysis	Unit	Specification	Results
Total Aerobic Micro Count	Pharmacopela Harmonized Methods	cfu/g	0-100	<100
Total Yeast & Mould Count	Pharmacopela Harmonized Methods	cfu/g	0-10	<10
Escherichia coli (10 g)	Pharmacopela Harmonized Methods		Negative	Negative
Salmonella (750g)	equal to ISO 6579		Negative	Negative

OTHERS				
Characteristic	Method of analysis	Unit	Specification	Results
Particle size <75 µm	Internal, ATM sonic sifter	% (m)	78-86	81
Particle size <180 µm	Internal, ATM sonic sifter	% (m)	>=98	99

Manufacturer: DFE Pharma GmbH & Co. KG, Goch, Germany (formerly named "DMV-Fonterra Excipients GmbH & Co. KG")



DFE Pharma GmbH & Co. KG / PO Box 20 21 20 / D-47568 Goch

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0811342880-900001-20221010-133649-2006-3420_FONT_01-000001

Remarks

Product Description: alpha-lactose monohydrate pharmaceutical grade

Identification: conforms USP-NF, Ph.Eur, JP current at time of manufacture.

Characteristics: A white or almost white, odourless, crystalline powder freely soluble in water, practically insoluble in ethanol.

Residual solvents: CPMP/ICH/283/95 and USP-NF Chapter 467
No class 1, 2, 3 solvents are used during production.

Production Site:
Fonterra Limited, Kaponga, New Zealand

Released by: Adora Joy Torres
Released on: Aug 5, 2022

DFE Pharma GmbH & Co. KG
Klever Straße 187, 47574 Goch / Germany
P.O. Box 20 21 20, 47568 Goch / Germany
Tel.: +49 (0) 2823 / 92 88 77 - 0
Fax: +49 (0) 2823 / 92 88 77 - 99

This document has been produced electronically and is valid without signature.

Manufacturer: DFE Pharma GmbH & Co. KG, Goch, Germany (formerly named "DMV-Fonterra Excipients GmbH & Co. KG")

Lampiran 8 COA maltodekstrin


ORIGINAL
DATE: AUG. 08, 2023

QINHUANGDAO LIHUA STARCH CO., LTD
 ADD: NO. 89 LIHUA STREET, FUNING DISTRICT, QINHUANGDAO CITY, HEBEI PROVINCE CHINA.

CERTIFICATE OF ANALYSIS

PRODUCT NAME	MALTODEXTRIN DE 10-12	REPORT NO.	1
BATCH NO.	20230729	PACKING	25KG/BAG
QUANTITY(MT)	55000KGS	PRODUCING DATE	JUL. 29, 2023
PRODUCTION UNIT	MALTO DEXTRIN WORKSHOP	DATE OF EXPIRY	JUL. 28, 2025
TEST BASE	GB/T 20882.6-2021	TEST OBJECT	ALL

TEST ITEM	TEST BASE	TEST RESULT
CHARACTER	SLIGHT HYGROSCOPIC POWDER, NO VISIBLE IMPURITIES BY NORMAL EYESIGHT, WHITE OR SLIGHT YELLOW, POSSESS MALTODEXTRIN ODOR, NOT SWEET OR SLIGHT SWEET, NO ABNORMAL TASTE	SLIGHT HYGROSCOPIC POWDER, NO VISIBLE IMPURITIES BY NORMAL EYESIGHT, WHITE OR SLIGHT YELLOW, POSSESS MALTODEXTRIN ODOR, NOT SWEET OR SLIGHT SWEET, NO ABNORMAL TASTE
DE VALUE, % (M/M)	10-12	11.7
DP1, %	≤5	<5
DP2, %	≤15	<15
WATER, % (M/M)	≤6	5.3
SOLUBILITY	≥98	99.2
PH VALUE	4.0-7.0	5.5
SULPHATE ASH % (M/M)	≤0.5	0.1
ARSENIC(AS), MG/KG	≤0.5	0.1
SO ₂ MG/KG	≤10	<10
PB, MG/KG	≤0.5	0.1
COLIFORM(CFU/G)	≤10	NONE
TOTAL PLATE COUNT (CFU/G)	≤3000	10
E. COLI	NONE	NONE
SHIGELLA (/25G)	NONE	NONE
STAPHYLOCOCCUS AUREUS(/25G)	NONE	NONE
SALMONELLA	NEGATIVE	NEGATIVE

CONCLUSION: THE PRODUCT COMPLY WITH THE SPECIFICATION OF GB/T 20882.6-2021
 MINISTER: CONG WEI CHECKER: LIU KUN EXAMINANT: SONG LI LI
 MANUFACTURER: QINHUANGDAO LIHUA STARCH CO., LTD.

Lampiran 9 COA Mikrokrystalin selulosa PH 102

JRS PHARMA & GUJARAT MICROWAX PRIVATE LIMITED

JRS **GMW** A MEMBER OF THE JRS GROUP

FLOCEL 102
Microcrystalline Cellulose Ph. Eur. NF, E 460 (I), FCC

CERTIFICATE OF ANALYSIS

Batch-no.: N1620 Manufacturing site: Nandasan, India
Re-evaluation date: November-2026
Manufacturing date: November-2021

Description: White or almost white, fine or granular, slightly hygroscopic powder.
Appearance: Practically insoluble in water, acetone, anhydrous ethanol and toluene, dilute acids
Solubility: and sodium hydroxide solution (50 g/L).

Characteristics	Acceptance criteria	Batch result	Reference
Identification A	IR scan conforms	Passes	Ph. Eur., NF
Identification B	Violet-blue color	Passes	Ph. Eur., NF
Identification C	Degree of polymerization max. 350	Passes	Ph. Eur., NF
Conductivity	Max. 75 $\mu\text{S}/\text{cm}$	41 $\mu\text{S}/\text{cm}$	Ph. Eur., NF
Ether-soluble substances	Max. 0.05 %	0.01 %	Ph. Eur., NF
Heavy metals	Max. 10 ppm	< 10 ppm	JRS Method
Loss on drying	Max. 6.0 %	3.88 %	Ph. Eur., USP
pH	5.0 - 7.0	6.41	Ph. Eur., USP
Solubility	Dissolves completely	Passes	Ph. Eur.
Sulphated ash / residue on ignition	Max. 0.05 %	0.02 %	Ph. Eur., USP
Water-soluble substances	Max. 0.24 %	0.12 %	Ph. Eur., NF
TAMC (Total aerobic microbial count)	Max. 10^3 CFU/g	25 CFU/g	Ph. Eur., USP
TYMC (Total yeast and mold count)	Max. 20 CFU/g	< 10 CFU/g	Ph. Eur., USP
Escherichia coli	Absent in 1 g	Absent	Ph. Eur., USP
Pseudomonas aeruginosa	Absent in 1 g	Absent	Ph. Eur., USP
Salmonella species	Absent in 10 g	Absent	Ph. Eur., USP
Staphylococcus aureus	Absent in 1 g	Absent	Ph. Eur., USP
Bulk density	0.27 - 0.34 g/mL	0.29 g/mL	NF
Sieve analysis (% Retention)			JRS Method
> 250 μm (60 mesh)	< 8.0 %	2.14 %	
> 75 μm (200 mesh)	> 45.0 %	55.72 %	

The raw materials, manufacturing process and product do not contain any of the solvents listed in Residual Solvents (Ph. Eur. <5.4>, USP <467>).
Elements listed in ICH Q3D Guideline for elemental impurities are not used in manufacturing and not analyzed per batch; detailed information is available on request.

For JRS PHARMA & GUJARAT MICROWAX PVT. LTD.
Anil Patel
Chemist Quality Control / Anil Patel

Manufacturer:
INDIA
JRS PHARMA & GUJARAT MICROWAX
PRIVATE LIMITED

Sales + Marketing:
WORLDWIDE
JRS PHARMA GMBH+CO.KG

USA + CANADA
JRS PHARMA LP

Lampiran 10 COA metanol



Certificate of Analysis

1.06009.2500 Methanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur
 Batch 11258409

	Spec. Values		Batch Values	
Purity (GC)	≥ 99.9	%	99.9	%
Identity (IR)	conforms		conforms	
Appearance	clear		clear	
Color	≤ 10	Hazen	< 5	Hazen
Solubility in water	conforms		conforms	
Acidity	≤ 0.0002	meq/g	0.0001	meq/g
Alkalinity	≤ 0.0002	meq/g	< 0.0002	meq/g
Density (d 20 °C/20 °C)	0.791 - 0.793		0.793	
Boiling point	64 - 65	°C	64	°C
Benzene (impurity A) (GC)	≤ 2	ppm	< 1	ppm
Ethanol (GC)	≤ 0.05	%	< 0.01	%
Acetone	≤ 0.001	%	≤ 0.001	%
Acetaldehyde	≤ 0.001	%	≤ 0.001	%
Formaldehyde	≤ 0.001	%	≤ 0.001	%
Readily carbonizable substances	conforms		conforms	
Carbonyl compounds (as CO)	≤ 0.001	%	≤ 0.001	%
Chloride (Cl)	≤ 0.5	ppm	≤ 0.5	ppm
Sulfate (SO ₄)	≤ 1	ppm	≤ 1	ppm
Substances reducing potassium permanganate (as O)	≤ 0.00025	%	≤ 0.00025	%
Ag (Silver)	≤ 0.000002	%	≤ 0.000002	%
Al (Aluminium)	≤ 0.00005	%	≤ 0.00005	%
As (Arsenic)	≤ 0.000002	%	≤ 0.000002	%
Au (Gold)	≤ 0.000002	%	≤ 0.000002	%
Ba (Barium)	≤ 0.00001	%	≤ 0.00001	%
Be (Beryllium)	≤ 0.000002	%	≤ 0.000002	%
Bi (Bismuth)	≤ 0.000002	%	≤ 0.000002	%
Ca (Calcium)	≤ 0.00005	%	≤ 0.00005	%
Cd (Cadmium)	≤ 0.000005	%	≤ 0.000005	%
Co (Cobalt)	≤ 0.000002	%	≤ 0.000002	%
Cr (Chromium)	≤ 0.000002	%	≤ 0.000002	%
Cu (Copper)	≤ 0.000002	%	≤ 0.000002	%
Fe (Iron)	≤ 0.00001	%	≤ 0.00001	%
Ga (Gallium)	≤ 0.000002	%	≤ 0.000002	%
In (Indium)	≤ 0.000002	%	≤ 0.000002	%
Li (Lithium)	≤ 0.000002	%	≤ 0.000002	%
Mg (Magnesium)	≤ 0.00001	%	≤ 0.00001	%
Mn (Manganese)	≤ 0.000002	%	≤ 0.000002	%
Mo (Molybdenum)	≤ 0.000002	%	≤ 0.000002	%
Ni (Nickel)	≤ 0.000002	%	≤ 0.000002	%
Pb (Lead)	≤ 0.00001	%	≤ 0.00001	%
Pt (Platinum)	≤ 0.000005	%	≤ 0.000005	%

Merck KGaA
Corporation with General Partners
Frankfurter Straße 250
64293 Darmstadt, Germany

The life science business of Merck KGaA, Darmstadt,
Germany operates as MilliporeSigma in the U.S. and
Canada.

Page 1 of 2

Certificate of Analysis

1.06009.2500 Methanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Batch I1258409

Sn (Tin)	≤ 0.00001	%	≤ 0.00001	%
Ti (Titanium)	≤ 0.000002	%	≤ 0.000002	%
Tl (Thallium)	≤ 0.000002	%	≤ 0.000002	%
V (Vanadium)	≤ 0.000002	%	≤ 0.000002	%
Zn (Zinc)	≤ 0.00001	%	≤ 0.00001	%
Zr (Zirconium)	≤ 0.000002	%	≤ 0.000002	%
Evaporation residue	≤ 0.0005	%	< 0.0001	%
Water	≤ 0.05	%	< 0.01	%

ACS, ISO, Reag Ph Eur

Date of release (DD.MM.YYYY) 01.12.2022
Minimum shelf life (DD.MM.YYYY) 31.10.2027

Jeannette David
Responsible laboratory manager quality control

This document has been produced electronically and is valid without a signature.

Lampiran 11 COA Dpph



Certificate of Analysis

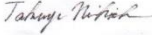
08/02/2023/J5

TOKYO CHEMICAL INDUSTRY CO., LTD.
4-10-1 Nihonbashi-Honcho, Chuo-ku, Tokyo 103-0023 Jap

Chemical Name: 1,1-Diphenyl-2-picrylhydrazyl Free Radical		
Product Number: D4313	Lot: U6GJC	
CAS RN: 1898-66-4		
Tests	Results	Specifications
Appearance	Black powder	Black powder to crystal
Purity(HPLC)	99.0 area%	min. 97.0 area%

TCI Lot numbers are 4-5 characters in length. Characters listed after the first 4-5 characters are control numbers for internal purpose only.
The contents of the specifications are subject to change without advance notice. The specification values displayed here are the most up to date values. There may be cases where the product labels display a different specification, however, the product quality still meets the latest specification.

Customer Service:
TOKYO CHEMICAL INDUSTRY CO., LTD
E-mail: globalbusiness@TCIchemicals.com


Takuya Nishioka
Quality Assurance Department Manager

Lampiran 12 Gambar alat dan bahan*Moisture balance**Flow tester semi automatis**Kompur listrik**Flow tester**Timbangan analitik**Spektrofotometri UV – Vis**Lemari pengering**Magnetic stirrer**Kuvet*

Jangka sorong



Gelas ukur

*Beakerglass*

Ekstruder



Spheronizer

*Pan coating*

Lampiran 13 Gambar hasil sediaan

Formula 0



Formula 1



Formula 2



Formula 3



Formula 4



Lampiran 14 Tabel hasil evaluasi sebelum disalut

Susut pengeringan					Laju alir				
Formula	Susut pengeringan			Rata-rata/SD	Formula	Laju alir			Rata-rata/SD
	%					(g/detik)			
	1	2	3			1	2	3	
0	1,415	1,133	1,154	1,234 ± 0,157	0	7,70	7,60	6,94	7,413 ± 0,413
1	0,525	0,656	0,512	0,564 ± 0,080	1	6,36	6,21	6,66	6,410 ± 0,229
2	1,020	1,224	1,481	1,242 ± 0,231	2	6,31	6,27	6,32	6,300 ± 0,026
3	1,709	1,596	1,105	1,470 ± 0,321	3	6,81	6,55	6,83	6,730 ± 0,156
4	1,271	1,250	1,435	1,319 ± 0,101	4	6,76	6,68	6,39	6,610 ± 0,195
Sudut istirahat									
Formula	Laju alir (g/detik)			Rata-rata/SD					
	1	2	3						
0	34,52	27,76	28,09	30,123 ± 3,881					
1	29,51	27,28	28,40	28,397 ± 1,115					
2	28,27	29,30	30,12	29,230 ± 0,927					
3	28,74	29,81	29,65	24,500 ± 0,577					
4	27,86	30,53	29,373	29,373 ± 1,370					

Lampiran 15 Tabel hasil evaluasi setelah disalut

Susut pengeringan				
Susut pengeringan				
Formula	%			Rata-rata/SD
	1	2	3	
0	1,415	1,133	1,154	1,234 ± 0,157
1	0,525	0,656	0,512	0,564 ± 0,080
2	1,020	1,224	1,481	1,242 ± 0,231
3	1,709	1,596	1,105	1,470 ± 0,321
4	1,271	1,250	1,435	1,319 ± 0,101
Sudut istirahat				
Formula	Laju alir (g/detik)			Rata-rata/SD
	1	2	3	
0	35,69	33,59	35,59	34,59 ± 1,185
1	28,76	29,54	28,22	28,840 ± 0,664
2	29,33	29,94	30,92	29,993 ± 0,600
3	28,68	31,27	29,92	29,957 ± 1,295
4	29,07	30,53	29,31	29,637 ± 0,783
Sedimentasi				
Formula	Sedimentasi			Rata-rata/SD
	1	2	3	
0	0,924	0,924	0,9	0,92 ± 0,014
1	0,91	0,9	0,895	0,90 ± 0,008
2	0,99	0,9	0,99	0,96 ± 0,052
3	0,9	0,9	0,905	0,90 ± 0,003
4	0,905	0,9	0,9	0,90 ± 0,003

Laju alir				
Laju alir				
Formula	(g/detik)			Rata-rata/SD
	1	2	3	
0	7,72	7,68	7,69	7,697 ± 0,021
1	7,58	7,55	7,61	7,580 ± 0,030
2	8,09	8,29	8,27	8,217 ± 0,110
3	8,29	8,16	7,63	8,027 ± 0,350
4	8,01	8,43	8,53	8,323 ± 0,276
Waktu melarut				
Formula	Laju alir (g/detik)			Rata-rata/SD
	1	2	3	
0	4,15	4,19	4,26	4,20 ± 0,056
1	4,21	4,1	4,47	4,26 ± 0,190
2	4,05	4,51	4,58	4,55 ± 0,600
3	4,05	4,08	4,12	4,08 ± 0,035
4	3,58	3,41	4,18	3,72 ± 0,405
Kenaikan bobot				
Formula	Bobot (gram)		Kenaikan bobot (%)	
	Sebelum disalut	Setelah disalut		
0	403,08	407,28	4,2	
1	351,44	351,66	0,22	
2	499,33	452,95	3,62	
3	450,04	463,78	13,74	
4	444,56	454,02	9,46	

Lampiran 16 Gambar diagram hasil evaluasi

Diagram hasil uji susut pengeringan

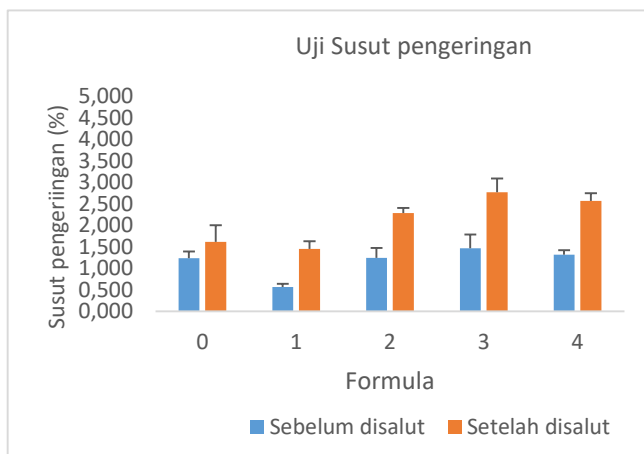


Diagram hasil uji laju alir

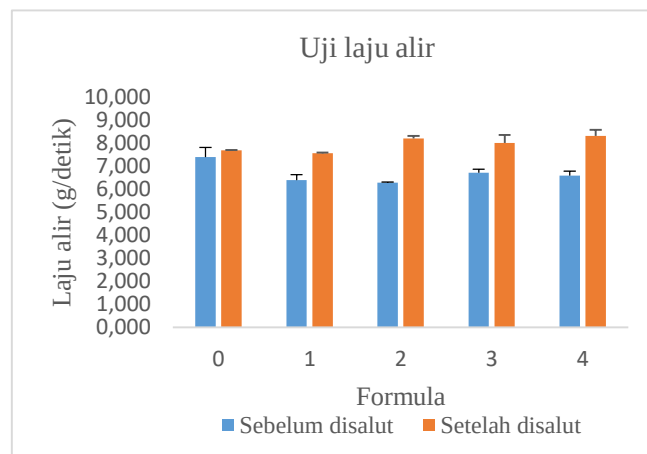


Diagram hasil uji sudut istirahat

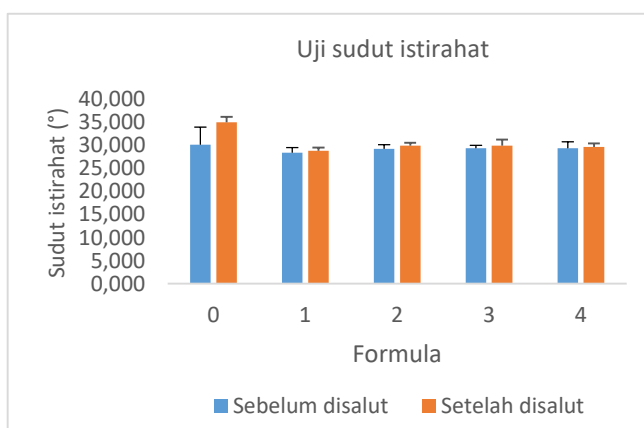


Diagram hasil uji distribusi ukuran partikel

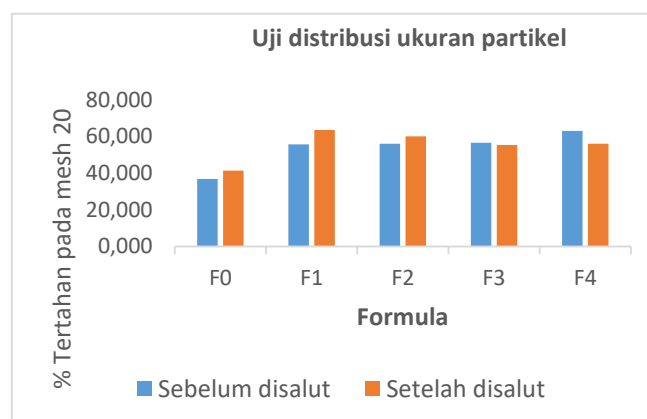


Diagram hasil uji waktu melarut

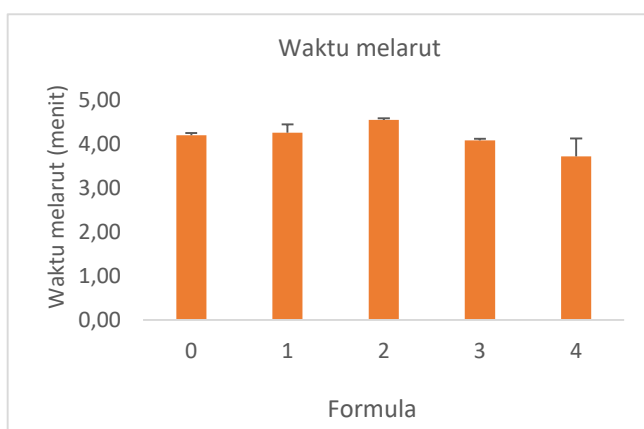


Diagram hasil uji sedimentasi

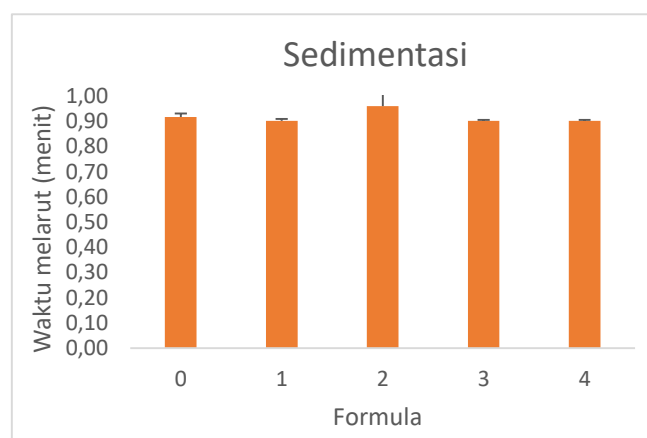
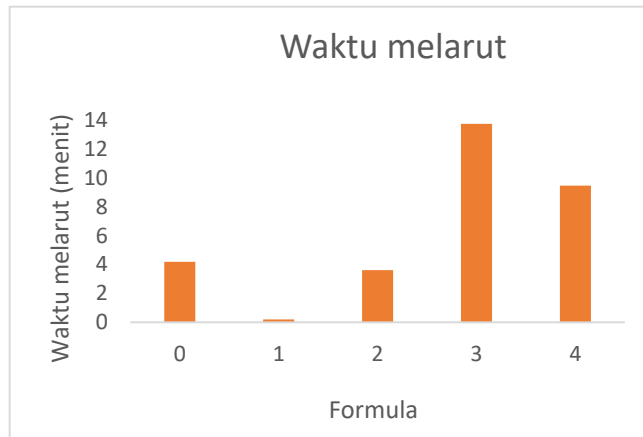


Diagram hasil uji kenaikan bobot



Lampiran 17 Hasil optimasi formula

D:\design expert\EKSTRAK 3 4 formula.dpx - Design-Expert 13

File Edit View Display Options Design Tools Help

Change View Round Columns Augment Design Hide/Show Columns

Navigation Pane

Design (Actual)

Information

Notes

Summary

Graph Columns

Evaluation

Constraints

Analysis [+]

IC50 (Empty)

Optimization

Numerical

Design Properties

Run 1

Comment

Row Status Normal

Std	Run	Component 1 A:Ekstrak Rosela	Component 2 B:Ekstrak Katuk	Component 3 C:Ekstrak Kumis ...	Response 1 IC50 µg/mL
1	1	0.666667	0.166667	0.166667	
3	2	0.166667	0.166667	0.666667	
2	3	0.166667	0.666667	0.166667	
4	4	0.333333	0.333333	0.333333	

Lampiran 18 Hasil uji statistik susut pengeringan

Sebelum disalut

Tests of Normality							
Pengujian		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Susut_pengeringan	FORMULA 0	.243	3	.	.972	3	.680
	FORMULA 1	.339	3	.	.850	3	.240
	FORMULA 2	.242	3	.	.973	3	.686
	FORMULA 3	.370	3	.	.786	3	.083
	FORMULA 4	.218	3	.	.987	3	.784

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Susut_pengeringan	Based on Mean	1.785	4	10	.208
	Based on Median	.395	4	10	.808
	Based on Median and with adjusted df	.395	4	5.805	.806
	Based on trimmed mean	1.628	4	10	.242

ANOVA					
Susut_pengeringan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.060	4	1.015	15.070	<.001
Within Groups	.673	10	.067		
Total	4.733	14			

Dependent Variable: Susut_pengeringan

Bonferroni

(I) Pengujian	(J) Pengujian	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
FORMULA 0	FORMULA 1	.161667	.211890	1.000	-.59720	.92053
	FORMULA 2	-.677000	.211890	.096	-1.43586	.08186
	FORMULA 3	-1.155667*	.211890	.003	-1.91453	-.39680
	FORMULA 4	-.955333*	.211890	.011	-1.71420	-.19647
FORMULA 1	FORMULA 0	-.161667	.211890	1.000	-.92053	.59720
	FORMULA 2	-.838667*	.211890	.027	-1.59753	-.07980
	FORMULA 3	-1.317333*	.211890	<.001	-2.07620	-.55847
	FORMULA 4	-1.117000*	.211890	.004	-1.87586	-.35814
FORMULA 2	FORMULA 0	.677000	.211890	.096	-.08186	1.43586
	FORMULA 1	.838667*	.211890	.027	.07980	1.59753
	FORMULA 3	-.478667	.211890	.474	-1.23753	.28020
	FORMULA 4	-.278333	.211890	1.000	-1.03720	.48053
FORMULA 3	FORMULA 0	1.155667*	.211890	.003	.39680	1.91453
	FORMULA 1	1.317333*	.211890	<.001	.55847	2.07620
	FORMULA 2	.478667	.211890	.474	-.28020	1.23753
	FORMULA 4	.200333	.211890	1.000	-.55853	.95920
FORMULA 4	FORMULA 0	.955333*	.211890	.011	.19647	1.71420
	FORMULA 1	1.117000*	.211890	.004	.35814	1.87586
	FORMULA 2	.278333	.211890	1.000	-.48053	1.03720
	FORMULA 3	-.200333	.211890	1.000	-.95920	.55853

*. The mean difference is significant at the 0.05 level.

Setelah disalut

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Pengujian	Statistic	df	Sig.	Statistic	df	Sig.
Susut_pengeringan	FORMULA 0	.243	3	.	.972	3	.680
	FORMULA 1	.339	3	.	.850	3	.240
	FORMULA 2	.242	3	.	.973	3	.686
	FORMULA 3	.370	3	.	.786	3	.083
	FORMULA 4	.218	3	.	.987	3	.784

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Susut_pengeringan	Based on Mean	1.785	4	10	.208
	Based on Median	.395	4	10	.808
	Based on Median and with adjusted df	.395	4	5.805	.806
	Based on trimmed mean	1.628	4	10	.242

ANOVA

Susut_pengeringan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.060	4	1.015	15.070	<.001
Within Groups	.673	10	.067		
Total	4.733	14			

Multiple Comparisons

Dependent Variable: Susut_pengeringan
Bonferroni

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) Pengujian	(J) Pengujian				Lower Bound	Upper Bound
FORMULA 0	FORMULA 1	.161667	.211890	1.000	-.59720	.92053
	FORMULA 2	-.677000	.211890	.096	-1.43586	.08186
	FORMULA 3	-1.155667*	.211890	.003	-1.91453	-.39680
	FORMULA 4	-.955333*	.211890	.011	-1.71420	-.19647
FORMULA 1	FORMULA 0	-.161667	.211890	1.000	-.92053	.59720
	FORMULA 2	-.838667*	.211890	.027	-1.59753	-.07980
	FORMULA 3	-1.317333*	.211890	<.001	-2.07620	-.55847
	FORMULA 4	-1.117000*	.211890	.004	-1.87586	-.35814
FORMULA 2	FORMULA 0	.677000	.211890	.096	-.08186	1.43586
	FORMULA 1	.838667*	.211890	.027	.07980	1.59753
	FORMULA 3	-.478667	.211890	.474	-1.23753	.28020
	FORMULA 4	-.278333	.211890	1.000	-1.03720	.48053
FORMULA 3	FORMULA 0	1.155667*	.211890	.003	.39680	1.91453
	FORMULA 1	1.317333*	.211890	<.001	.55847	2.07620
	FORMULA 2	.478667	.211890	.474	-.28020	1.23753
	FORMULA 4	.200333	.211890	1.000	-.55853	.95920
FORMULA 4	FORMULA 0	.955333*	.211890	.011	.19647	1.71420
	FORMULA 1	1.117000*	.211890	.004	.35814	1.87586
	FORMULA 2	.278333	.211890	1.000	-.48053	1.03720
	FORMULA 3	-.200333	.211890	1.000	-.95920	.55853

*. The mean difference is significant at the 0.05 level.

Lampiran 19 Hasil uji statistik laju alir

Sebelum disalut

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Pengujian		Statistic	df	Sig.	Statistic	df	Sig.
Laju_alir	FORMULA 0	.341	3	.	.847	3	.232
	FORMULA 1	.253	3	.	.964	3	.637
	FORMULA 2	.314	3	.	.893	3	.363
	FORMULA 3	.362	3	.	.803	3	.122
	FORMULA 4	.307	3	.	.903	3	.395

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Laju_alir	Based on Mean	4.202	4	10	.030
	Based on Median	.580	4	10	.684
	Based on Median and with adjusted df	.580	4	4.260	.694
	Based on trimmed mean	3.657	4	10	.044

ANOVA

Laju_alir

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.285	4	.571	9.986	.002
Within Groups	.572	10	.057		
Total	2.857	14			

Multiple Comparisons

Dependent Variable: Laju_alir

Bonferroni

(I) Pengujian	(J) Pengujian	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
FORMULA 0	FORMULA 1	1.003333*	.195289	.004	.30392	1.70274
	FORMULA 2	1.113333*	.195289	.002	.41392	1.81274
	FORMULA 3	.683333	.195289	.057	-.01608	1.38274
	FORMULA 4	.803333*	.195289	.021	.10392	1.50274
FORMULA 1	FORMULA 0	-1.003333*	.195289	.004	-1.70274	-.30392
	FORMULA 2	.110000	.195289	1.000	-.58941	.80941
	FORMULA 3	-.320000	.195289	1.000	-1.01941	.37941
	FORMULA 4	-.200000	.195289	1.000	-.89941	.49941
FORMULA 2	FORMULA 0	-1.113333*	.195289	.002	-1.81274	-.41392
	FORMULA 1	-.110000	.195289	1.000	-.80941	.58941
	FORMULA 3	-.430000	.195289	.523	-1.12941	.26941
	FORMULA 4	-.310000	.195289	1.000	-1.00941	.38941
FORMULA 3	FORMULA 0	-.683333	.195289	.057	-1.38274	.01608
	FORMULA 1	.320000	.195289	1.000	-.37941	1.01941
	FORMULA 2	.430000	.195289	.523	-.26941	1.12941
	FORMULA 4	.120000	.195289	1.000	-.57941	.81941
FORMULA 4	FORMULA 0	-.803333*	.195289	.021	-1.50274	-.10392
	FORMULA 1	.200000	.195289	1.000	-.49941	.89941
	FORMULA 2	.310000	.195289	1.000	-.38941	1.00941
	FORMULA 3	-.120000	.195289	1.000	-.81941	.57941

*. The mean difference is significant at the 0.05 level.

Setelah disalut

Tests of Normality

Pengujian		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Laju_alir	FORMULA 0	.292	3	.	.923	3	.463
	FORMULA 1	.175	3	.	1.000	3	1.000
	FORMULA 2	.353	3	.	.824	3	.174
	FORMULA 3	.315	3	.	.891	3	.357
	FORMULA 4	.317	3	.	.888	3	.348

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene	df1	df2	Sig.
		Statistic			
Laju_alir	Based on Mean	6.403	4	10	.008
	Based on Median	.969	4	10	.466
	Based on Median and with adjusted df	.969	4	4.407	.506
	Based on trimmed mean	5.607	4	10	.012

ANOVA

Laju_alir					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.247	4	.312	7.359	.005
Within Groups	.424	10	.042		
Total	1.671	14			

Multiple Comparisons

Dependent Variable: Laju_alir
Bonferroni

(I) Pengujian	(J) Pengujian	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
FORMULA 0	FORMULA 1	.116667	.168061	1.000	-.48523	.71856
	FORMULA 2	-.520000	.168061	.114	-1.12189	.08189
	FORMULA 3	-.330000	.168061	.780	-.93189	.27189
	FORMULA 4	-.626667*	.168061	.039	-1.22856	-.02477
FORMULA 1	FORMULA 0	-.116667	.168061	1.000	-.71856	.48523
	FORMULA 2	-.636667*	.168061	.036	-1.23856	-.03477
	FORMULA 3	-.446667	.168061	.240	-1.04856	.15523
	FORMULA 4	-.743333*	.168061	.013	-1.34523	-.14144
FORMULA 2	FORMULA 0	.520000	.168061	.114	-.08189	1.12189
	FORMULA 1	.636667*	.168061	.036	.03477	1.23856
	FORMULA 3	.190000	.168061	1.000	-.41189	.79189
	FORMULA 4	-.106667	.168061	1.000	-.70856	.49523
FORMULA 3	FORMULA 0	.330000	.168061	.780	-.27189	.93189
	FORMULA 1	.446667	.168061	.240	-.15523	1.04856
	FORMULA 2	-.190000	.168061	1.000	-.79189	.41189
	FORMULA 4	-.296667	.168061	1.000	-.89856	.30523
FORMULA 4	FORMULA 0	.626667*	.168061	.039	.02477	1.22856
	FORMULA 1	.743333*	.168061	.013	.14144	1.34523
	FORMULA 2	.106667	.168061	1.000	-.49523	.70856
	FORMULA 3	.296667	.168061	1.000	-.30523	.89856

*. The mean difference is significant at the 0.05 level.

Lampiran 20 Hasil uji statistik sudut istirahat

Sebelum disalut

Tests of Normality

Kolmogorov-Smirnov ^a					Shapiro-Wilk		
	Pengujian	Statistic	df	Sig.	Statistic	df	Sig.
Sudut_istirahat	FORMULA 0	.370	3	.	.787	3	.083
	FORMULA 1	.175	3	.	1.000	3	.995
	FORMULA 2	.197	3	.	.996	3	.875
	FORMULA 3	.334	3	.	.859	3	.266
	FORMULA 4	.269	3	.	.949	3	.566

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Sudut_istirahat	Based on Mean	5.748	4	10	.011
	Based on Median	.554	4	10	.701
	Based on Median and with adjusted df	.554	4	2.580	.717
	Based on trimmed mean	4.889	4	10	.019

ANOVA

Sudut_istirahat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.542	4	1.136	.301	.871
Within Groups	37.677	10	3.768		
Total	42.219	14			

Setelah disalut

Tests of Normality

	Pengujian	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sudut_istirahat	FORMULA 0	.370	3	.	.786	3	.081
	FORMULA 1	.215	3	.	.989	3	.800
	FORMULA 2	.228	3	.	.982	3	.745
	FORMULA 3	.178	3	.	.999	3	.953
	FORMULA 4	.328	3	.	.869	3	.294

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Sudut_istirahat	Based on Mean	.565	4	10	.694
	Based on Median	.173	4	10	.947
	Based on Median and with adjusted df	.173	4	6.438	.945
	Based on trimmed mean	.527	4	10	.719

ANOVA

Sudut_istirahat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	71.001	4	17.750	18.574	<.001
Within Groups	9.556	10	.956		
Total	80.557	14			

Multiple Comparisons

Dependent Variable: Sudut_istirahat

Bonferroni

(I) Pengujian	(J) Pengujian	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
FORMULA 0	FORMULA 1	6.116667*	.798176	<.001	3.25808	8.97526
	FORMULA 2	4.893333*	.798176	.001	2.03474	7.75192
	FORMULA 3	5.000000*	.798176	<.001	2.14141	7.85859
	FORMULA 4	5.320000*	.798176	<.001	2.46141	8.17859
FORMULA 1	FORMULA 0	-6.116667*	.798176	<.001	-8.97526	-3.25808
	FORMULA 2	-1.223333	.798176	1.000	-4.08192	1.63526
	FORMULA 3	-1.116667	.798176	1.000	-3.97526	1.74192
	FORMULA 4	-.796667	.798176	1.000	-3.65526	2.06192
FORMULA 2	FORMULA 0	-4.893333*	.798176	.001	-7.75192	-2.03474
	FORMULA 1	1.223333	.798176	1.000	-1.63526	4.08192
	FORMULA 3	.106667	.798176	1.000	-2.75192	2.96526
	FORMULA 4	.426667	.798176	1.000	-2.43192	3.28526
FORMULA 3	FORMULA 0	-5.000000*	.798176	<.001	-7.85859	-2.14141
	FORMULA 1	1.116667	.798176	1.000	-1.74192	3.97526
	FORMULA 2	-.106667	.798176	1.000	-2.96526	2.75192
	FORMULA 4	.320000	.798176	1.000	-2.53859	3.17859
FORMULA 4	FORMULA 0	-5.320000*	.798176	<.001	-8.17859	-2.46141
	FORMULA 1	.796667	.798176	1.000	-2.06192	3.65526
	FORMULA 2	-.426667	.798176	1.000	-3.28526	2.43192
	FORMULA 3	-.320000	.798176	1.000	-3.17859	2.53859

*. The mean difference is significant at the 0.05 level.

Lampiran 21 Hasil uji statistik waktu melarut

Tests of Normality

Pengujian		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Waktu_melarut	FORMULA 0	.238	3	.	.976	3	.702
	FORMULA 1	.270	3	.	.948	3	.561
	FORMULA 2	.341	3	.	.847	3	.233
	FORMULA 3	.204	3	.	.993	3	.843
	FORMULA 4	.305	3	.	.906	3	.404

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Waktu_melarut	Based on Mean	4.980	4	10	.018
	Based on Median	.814	4	10	.545
	Based on Median and with adjusted df	.814	4	4.677	.570
	Based on trimmed mean	4.406	4	10	.026

ANOVA

Waktu_melarut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.756	4	.189	3.291	.058
Within Groups	.574	10	.057		
Total	1.329	14			

Lampiran 22 Hasil uji statistik sedimentasi

Tests of Normality

Pengujian		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sedimentasi	FORMULA 0	.385	3	.	.750	3	.000
	FORMULA 1	.253	3	.	.964	3	.637
	FORMULA 2	.385	3	.	.750	3	.000
	FORMULA 3	.385	3	.	.750	3	.000
	FORMULA 4	.385	3	.	.750	3	.000

a. Lilliefors Significance Correction

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Sedimentasi	Based on Mean	11.393	4	10	<.001
	Based on Median	.722	4	10	.596
	Based on Median and with adjusted df	.722	4	2.349	.642
	Based on trimmed mean	9.018	4	10	.002

ANOVA

Sedimentasi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.008	4	.002	3.226	.061
Within Groups	.006	10	.001		
Total	.014	14			

Lampiran 23 Hasil cek turnitin

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Faudzi Nurrahman Hakim

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KARTU BIMBINGAN TUGAS AKHIR I/TUGAS AKHIR II

Pembimbing Serta	: Rahma Ziska, M.Si.
Nama Mahasiswa	: Faudzi Nurrahman Hakim
NPM	: 201FF03098
Bidang Ilmu	: FTF

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