LAMPIRAN

Lampiran 1. Format Surat Bebas Plagiasi

SURAT PERNYATAAN

Yang bertanda tangan di bawah ini,

Nama : Yogi Pangestu

N P M : 11181101

adalah mahasiswa Fakultas Farmasi, Universitas Bhakti Kencana, menyatakan dengan sesungguhnya bahwa Naskah Tugas Akhir/Skripsi yang saya tulis dengan judul:

Optimasi Formula Sediaan Granul Instan Dari Kombinasi Ekstrak Daun Katuk (*Sauroupus androgynous* L.Merr) dan Rimpang Kunyit (Curcuma longa. L) Dengan Menggunkan Metode Granulasi Basah Yang Berkhasiat Sebagai Antioksidan

adalah benar-benar merupakan hasil karya saya sendiri. Apabila di kemudian hari diketahui bahwa isi Naskah Skripsi ini merupakan hasil plagiasi, maka saya bersedia menerima sanksi berupa pembatalan kelulusan dan atau pencabutan gelar yang saya peroleh.

Demikian surat pernyataan ini saya buat untuk dapat dipergunakan sebagaimana mestinya.

Bandung , Agustus 2022

Yang membuat pernyataan,

(Yogi Pangestu)

NPM .11181101

Lampiran 2. Format surat persetujuan untuk dipublikasikan di media online

SURAT PERNYATAAN

Yang bertanda tangan di bawah ini,

Nama : Yogi Pangestu

N P M : 11181101

Menyatakan bahwa demi kepentingan perkembangan ilmu pengetahuan, saya menyetujui abstrak Skripsi yang saya tulis dengan judul:

Optimasi Formula Sediaan Granul Instan Dari Kombinasi Ekstrak Daun Katuk (*Sauroupus androgynous* L.Merr) dan Rimpang Kunyit (Curcuma longa. L) Dengan Menggunkan Metode Granulasi Basah Yang Berkhasiat Sebagai Antioksidan

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Demikian surat pernyataan ini saya buat untuk dapat dipergunakan sebagaimana mestinya.

Bandung , Agustus 2022

Yang membuat pernyataan,

(Yogi Pangestu)

NPM . 11181101

Lampiran 3. CoA (*Certificate of Analysis*) Bahan Aktif dan Eksipien

PVP K-30

BASF
The Chemical Company

Certificate of Analysis
BASF South East Asia Pte Ltd

2020-12-07
GKA/M320
Fr. Nina Dominique Kaeppel
+4962160-51484
Certificate No. 1305

Certificate of Analysis according to DIN 55350-18-4.2.2

PVP K30

Test Parameter	Requirements	UoM	Result
Identification (IR)	Must conform		Conform
pH -value	Min 3.0 Max 7.0		3.6
Water	Max 5.00	g/100g	3.90
Residue on ignition / Sulphated ash	Max 5.00	g/100g	< 0.02
Lead	Max 10	mg/kg	<10
Aldehydes	Max 500	mg/kg	44
Hydrazine	Max 1	mg/kg	<1
Vynilpyrrolidone (impurity A)	Max 10	mg/kg	<2
K-value	Min 27.0 Max 32.4		31.0
Organic volatile impurities	Must conform		Conforms

Sukralosa

kanbo SUCRALOSE

Shandong Kanbo Biochemical Technology Co., Ltd

Add: No.1016,Liba Road, Lijin County, Dongying City, Shandong Province,257400,P.R.China

CERTIFICATE OF ANALYSIS

Product Name: Sucralose	[56038-13-2]	Test Date:	October 7, 2021
Batch NO.: 202109066		Manu.Date:	October 1, 2021
Quantity: 2000	kg	Expiry Date:	September 30, 2023

Item	FCC12, EP10, USP43 , E955,GB25531andGB4789	Result
Appearance	White or almost white powder	Complies
Ident IR	The IR absorption spectrum conform the reference spectrum	Pass
Ident HPLC	The retention time of the principal peak in the chromatogram of the Assay preparation corresponds to that in the chromatogram of the Standard preparation	Pass
Ident TLC	The Rf value of the major spot in the thin-layer chromatogram of the Sample solution is the same as that of the Standard solution obtained in the test for Related Substances.	Pass
Assay	98.0~102.0%	99.30%
Specific Rotation	+84.0~+87.5°	+85.83°
Clarity of solution	---	Clear
PH (10% aqueous solution)	5.0~7.0	6.72
Moisture	≤2.0%	0.14%
Methanol	≤0.1%	Not detected
Ignited Residue	≤0.7%	0.02%
Arsenic(As)	≤3ppm	<3ppm
Heavy metals	≤10ppm	<10ppm
Lead	≤1ppm	Not detected
Related substances (Other chlorinated	≤0.5%	<0.5%
Hydrolysis products (Chlorinated monosaccharides)	≤0.1%	Complies
Triphenylphosphine oxide	≤150ppm	<150ppm
Total aerobic count	≤250CFU/g	<20CFU/g
Yeast & Moulds	≤50CFU/g	<10CFU/g
Coliforms	Negative	Nf
E.coli	Negative	Nf
S.aureus	Negative	Nf
Salmonella	Negative	Nf

Particle size 95% pass through 100 mesh

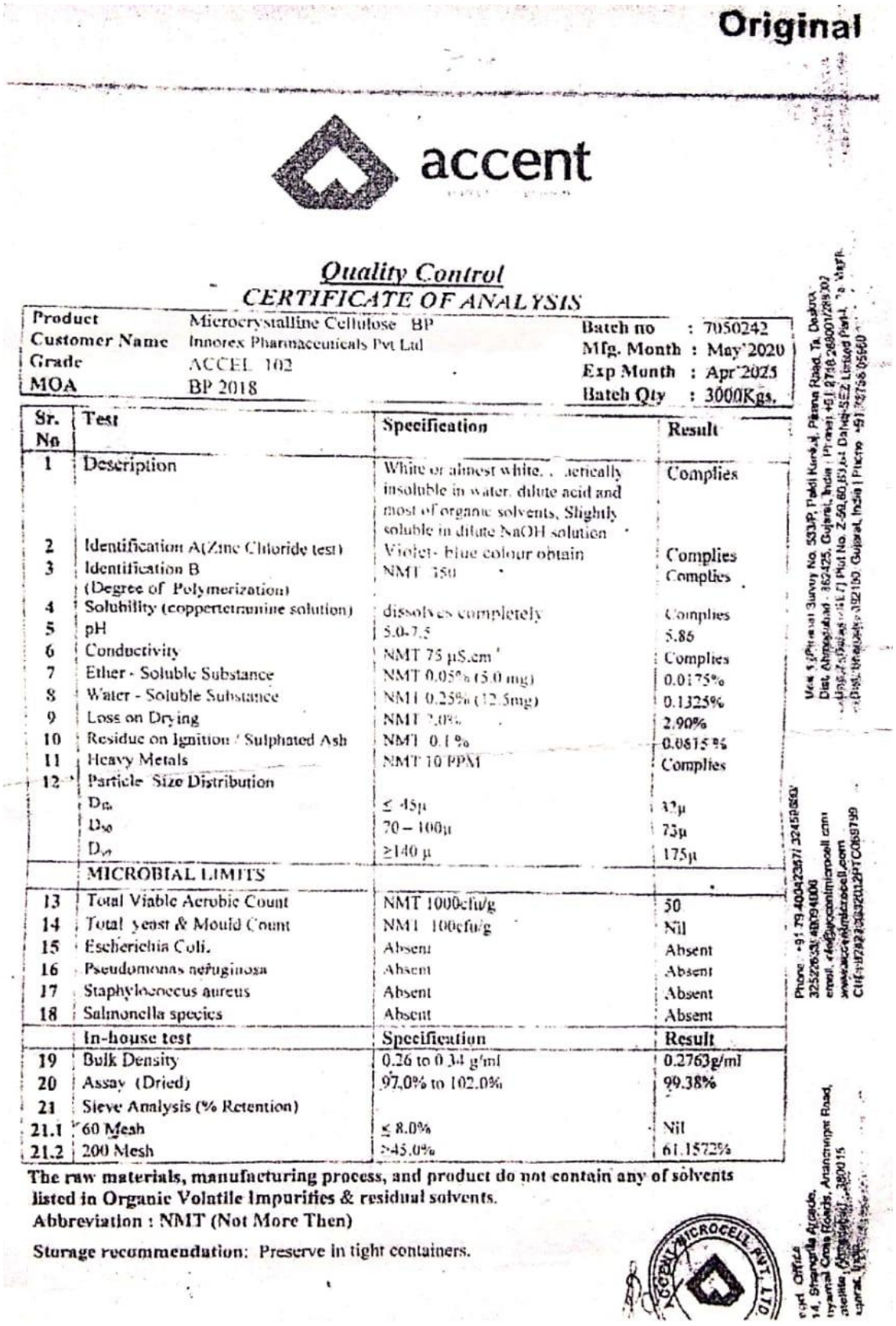
Storage condition:Store in well closed container, dry and cool place

Shelf Life: 2 years while stored in original packing under above stated condition

Conclusion: The product complies with FCC12, EP10, USP43, E955,GB25531 andGB4789 standards.

Approved: Xu Songbo Inspector: Liu Shilong

Avicel 102



Original

accent

Quality Control

CERTIFICATE OF ANALYSIS

Product	Microcrystalline Cellulose BP	**Batch no**	: 7050242
Customer Name	Innorex Pharmaceuticals Pvt Ltd	**Mfg. Month**	: May'2020
Grade	ACCEL 102	**Exp Month**	: Apr'2025
MOA	BP 2018	**Batch Qty**	: 3000Kgs.

Sr. No	Test	Specification	Result
1	Description	White or almost white, [illegible]ically insoluble in water, dilute acid and most of organic solvents, Slightly soluble in dilute NaOH solution	Complies
2	Identification A(Zinc Chloride test)	Violet- blue colour obtain	Complies
3	Identification B (Degree of Polymerization)	NMT 350	Complies
4	Solubility (coppertetramine solution)	dissolves completely	Complies
5	pH	5.0-7.5	5.86
6	Conductivity	NMT 75 µS.cm⁻¹	Complies
7	Ether - Soluble Substance	NMT 0.05% (5.0 mg)	0.0175%
8	Water - Soluble Substance	NMT 0.25% (12.5mg)	0.1325%
9	Loss on Drying	NMT 3.0%	2.90%
10	Residue on Ignition / Sulphated Ash	NMT 0.1 %	0.0815 %
11	Heavy Metals	NMT 10 PPM	Complies
12	Particle Size Distribution		
	D_{10}	≤ 45µ	32µ
	D_{50}	70 – 100µ	73µ
	D_{90}	≥140 µ	175µ
	MICROBIAL LIMITS		
13	Total Viable Aerobic Count	NMT 1000cfu/g	50
14	Total yeast & Mould Count	NMT 100cfu/g	Nil
15	Escherichia Coli.	Absent	Absent
16	Pseudomonas aeruginosa	Absent	Absent
17	Staphylococcus aureus	Absent	Absent
18	Salmonella species	Absent	Absent
	In-house test	**Specification**	**Result**
19	Bulk Density	0.26 to 0.34 g/ml	0.2763g/ml
20	Assay (Dried)	97.0% to 102.0%	99.38%
21	Sieve Analysis (% Retention)		
21.1	60 Mesh	≤ 8.0%	Nil
21.2	200 Mesh	≥45.0%	61.1572%

The raw materials, manufacturing process, and product do not contain any of solvents listed in Organic Volatile Impurities & residual solvents.

Abbreviation : NMT (Not More Then)

Storage recommendation: Preserve in tight containers.

ACCENT MICROCELL PVT. LTD.

COA. Ekstrak Katuk

PT EBM Saintifik dan Teknologi
Jl. Bukit Raya 582, Ciumbuleuit, Cidadap, Bandung, Jawa Barat, Indonesia 40142
Website: www.markherb.com
Email: info@markherb.com

For Laboratory Use Only

PROOF OF SERVICE

22-03/PoS-MH/1

1. **Quotation** : **22-01/Q-MH/18**
2. **Principal**
   - Customer name : Yogi Pangestu
   - Institution/Address : Universitas Bhakti Kencana
   - Phone : +62 857 2392 7727
   - Email : 11181101@bku.ac.id
3. **Sample**
   - Sample name : Rimpang kunyit (*Curcuma longa* L)
   - Package/Size : 940 g
   - Date of received : January 2022
   - Date of service : March 2022
   - Type of service : Extraction

Extraction result

Parameters	Description
Sample preparation	Dried, powdered, 940 g
Extraction methods	Maceration, room temperature, 2 x 24h, solid-solvent ratio (1:5, w/v)
Solvent	Ethanol 96%
Solvent drying	Vacuum rotary evaporator
Yield	80 g
Extract appearance	Yellow, sticky
Storage	4 to 8°C

Ethical statement

This proof of service declares that the customer is not allowed to claim the product or method as his/her own work/research. On the contrary, the customer should mention that the product and service were provided by Markherb.

Bandung, 2 March 2022

apt. Nanda Putra, M.S.Farm.
Service Manager

QC :
Date : 2/3/22

QA :
Date : 2/3/22

Lampiran 4. Hasil Skrining Fitokimia Ekstrak

Hasil Skrining Fitokimia Ekstrak Katuk

Skrining Fitokimia Ekstrak Katuk					
					
Alkaloid	Flavonoid	Saponin	Kuinon	Tanin	Steroid/triterpenoid

Hasil Skrining Fitokimia Ekstrak Kunyit

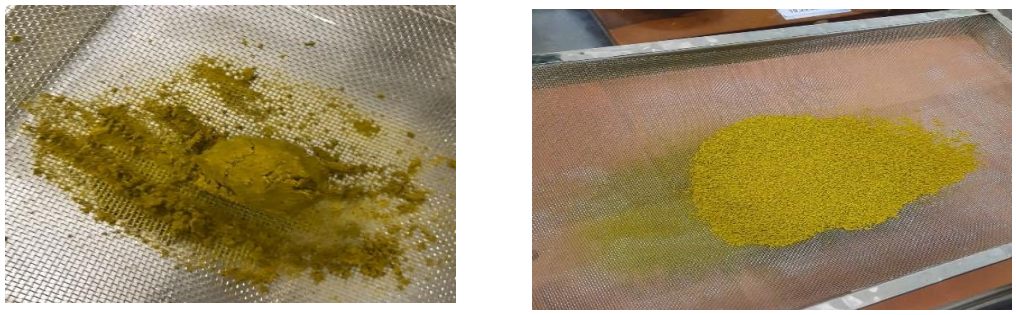
Skrining Fitokimia Ekstrak Kunyit					
					
Alkaloid	Flavonoid	Saponin	Kuinon	Tanin	Steroid/triterpenoid

Lampiran 5. Proses Pembuatan Sediaan Granul Instan

Proses Pencampuran/mixing

Proses Masa Kepal

Proses Pengayakan



Proses Pengeringan

Lampiran 6. Perhitungan Evaluasi Sediaan Granul Instan

1. Laju Alir

Rumus : Bobot (g)/waktu (s)

1. Formula 1
   - Percobaan 1 = $\frac{50\ g}{10{,}93} = 4{,}575$
   - Percobaan 2 = $\frac{50\ g}{10{,}96} = 4{,}562$
   - Percobaan 3 = $\frac{50\ g}{10{,}55} = 4{,}739$
2. Formula 2
   - Percobaan 1 = $\frac{50\ g}{9{,}9} = 5{,}051$
   - Percobaan 2 = $\frac{50\ g}{9{,}5} = 5{,}263$
   - Percobaan 3 = $\frac{50\ g}{9{,}42} = 5{,}308$
3. Formula 3
   - Percobaan 1 = $\frac{50\ g}{10{,}86} = 4{,}604$
   - Percobaan 2 = $\frac{50\ g}{10{,}8} = 4{,}630$
   - Percobaan 3 = $\frac{50\ g}{10{,}65} = 4{,}695$
4. Formula 4
   - Percobaan 1 = $\frac{50\ g}{11{,}51} = 4{,}344$
   - Percobaan 2 = $\frac{50\ g}{11{,}83} = 4{,}227$
   - Percobaan 3 = $\frac{50\ g}{11{,}48} = 4{,}355$
5. Formula 5
   - Percobaan 1 = $\frac{50\ g}{11{,}44} = 4{,}3706$
   - Percobaan 2 = $\frac{50\ g}{11{,}57} = 4{,}3215$
   - Percobaan 3 = $\frac{50\ g}{11{,}88} = 4{,}208$

3. Sudut Diam

Rumus: Tan α = $\frac{h}{r}$

Keterangan:

h = Tinggi kerucut (cm)

r = Jari-jari kerucut (cm) α = Sudut diam

a. Formula 1

- Tan α = $\frac{2,07}{2,625} = 0,788$

  Tan α = 38,23

- Tan α = $\frac{2,12}{2,625} = 0,8076$

  Tan α = 38,98

- Tan α = $\frac{2,05}{2,625} = 0,7961$

  Tan^{-1} = 37,97

b. Formula 2

- Tan α = $\frac{1,86}{2,625} = 0,709$

  Tan α = 35,32

- Tan α = $\frac{1,90}{2,625} = 0,723$

  Tan^{-1} = 35,87

- Tan α = $\frac{1,83}{2,625} = 0,6994$

  Tan^{-} α = 34,97

c. Formula 3

- Tan α = $\frac{2,014}{2,625} = 0,767$

  Tan α = 37,48

- Tan α = $\frac{1,990}{2,625} = 0,758$

  Tan α = 37,12

- Tan α = $\frac{2,064}{2,625} = 0,779$

  Tan α = 37,92

d. Formula 4

- Tan α = $\frac{1,917}{2,625} = 0,7302$

  Tan α = 36,14

- Tan α = $\frac{1,920}{2,625} = 0,7314$

  Tan α = 36,18

- Tan α = $\frac{1,924}{2,625} = 0,7329$

  Tan α = 36,24

e. Formula 5

- Tan α = $\frac{1,786}{2,625} = 0,680$

  Tan α = 34,21

- Tan α = $\frac{1,835}{2,625} = 0,6990$

  Tan α = 34,95

- Tan α = $\frac{1,794}{2,625} = 0,6834$

  Tan α = 34,35

3. Kompresibilitas

Kerapatan Nyata = $\frac{Bobot\ granul\ (gram)}{Volume\ granul\ (mL)}$

Kerapatan Mampat = $\frac{Bobot\ granul\ (gram)}{Volume\ mampat\ granul\ (mL)}$

Indeks Kompresibilitas = $\frac{Kerapatan\ mampat\ (Df) - Kerapatan\ nyata\ (Do)}{Kerapatan\ Mampat\ (Df)}$ x 100%

a. Formula 1

1. Kerapatan Nyata Bobot (g)/Volume (ml)

No	W (g)	V (ml)	BJ (g/ml)
1	73,75	250	0,295
2	73,5	250	0,294
3	72	250	0,288
Rata-rata			0,292 ± 0,004

2. Kerapatan Mampat

Interval Pengetukan	Volume (ml) 1	Volume (ml) 2	Volume (ml) 3
10	239	239	236
500	218	215	214
1250	216	214	212
Kerapatan (g/ml)	$\frac{73{,}75\ g}{216\ mL}$ **= 0,341**	$\frac{73{,}5\ g}{214\ mL}$ **=0,342**	$\frac{72\ g}{212\ mL}$ **=0,339**
Rata-rata (g/ml)	0,361 ± 0,033		

3. % Kompresibilitas

- Percobaan 1 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}341-0{,}295}{0{,}341} x\ 100\ \% = 13{,}48\ \%$

- Percobaan 2 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}342-0{,}294}{0{,}342} x\ 100\ \% = 14{,}03\ \%$

- Percobaan 3 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}339-0{,}288}{0{,}339} x\ 100\ \% = 15{,}07\ \%$

b. Formula 2

1. Kerapatan Nyata Bobot (g)/Volume (ml)

No	W (g)	V (ml)	BJ (g/ml)
1	80,51	250	0,322
2	81,72	250	0,326
3	82,08	250	0,328
Rata-rata			0,328 ± 0,002

2. Kerapatan Mampat

Interval Pengetukan	Volume (ml) 1	Volume (ml) 2	Volume (ml) 3
10	239	240	242
500	220	221	221
1250	218	219	220
Kerapatan (g/ml)	$\frac{80{,}51\ g}{220 mL}$ **= 0,365**	$\frac{81{,}72\ g}{221\ mL}$ **=0,369**	$\frac{82{,}08\ g}{221\ mL}$ **=0,371**
Rata-rata (g/ml)	0,368 ± 0,003		

3. % Kompresibilitas

- Percobaan 1 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}365-0{,}322}{0{,}365} x\ 100\ \% = 11{,}99\ \%$

- Percobaan 2 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}369-0{,}326}{0{,}369} x\ 100\ \% = 11{,}82\ \%$

- Percobaan 3 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}371-0{,}328}{0{,}371} x\ 100\ \% = 11{,}68\ \%$

c. Formula 3

1. Kerapatan Nyata Bobot (g)/Volume (ml)

No	W (g)	V (ml)	BJ (g/ml)
1	82,25	250	0,329
2	73,75	250	0,295
3	75	250	0,3
Rata-rata			0,308 ± 0,018

2. Kerapatan Mampat

Interval Pengetukan	Volume (ml)	Volume (ml)	Volume (ml)
	1	2	3
10	244	246	242
500	224	218	222
1250	223	216	220
Kerapatan (g/ml)	$\frac{82{,}35\ g}{223\ mL}$ **= 0,329**	$\frac{73{,}78\ g}{216\ mL}$ **=0,3415**	$\frac{75{,}07\ g}{220\ mL}$ **=0,3412**
Rata-rata (g/ml)	0,350 ± 0,016		

3. % Kompresibilitas

- Percobaan 1 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}368-0{,}329}{0{,}368} x\ 100\ \% = 10{,}59\ \%$

- Percobaan 2 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}3415-0{,}295}{0{,}3415} x\ 100\ \% = 13{,}618\ \%$

- Percobaan 3 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}3412-0{,}300}{0{,}3412} x\ 100\ \% = 12{,}0\ \%$

d. Formula 4

1. Kerapatan Nyata Bobot (g)/Volume (ml)

No	W (g)	V (ml)	BJ (g/ml)
1	66,71	250	0,266
2	66,5	250	0,267
3	67,01	250	0,268
Rata-rata			0,67 ± 0,001

2. Kerapatan Mampat

Interval Pengetukan	Volume (ml)	Volume (ml)	Volume (ml)
	1	2	3
10	242	242	239
500	228	229	223
1250	226	228	221
Kerapatan (g/ml)	$\frac{66{,}71\ g}{226\ mL}$ **= 0,2951**	$\frac{66{,}5\ g}{228\ mL}$ **=0,2916**	$\frac{67{,}01\ g}{221\ mL}$ **=0,3020**
Rata-rata (g/ml)	0,296 ± 0,006		

3. % Kompresibilitas

- Percobaan 1 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}2951-0{,}266}{0{,}2951} x\ 100\ \% = 9{,}86\ \%$

- Percobaan 2 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}2916-0{,}267}{0{,}2916} x\ 100\ \% = 10{,}83\ \%$

- Percobaan 3 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}3020-0{,}268}{0{,}3020} x\ 100\ \% = 11{,}86\ \%$

e. Formula 5

1. Kerapatan Nyata Bobot (g)/Volume (ml)

No	W (g)	V (ml)	BJ (g/ml)
1	73,51	250	0,294
2	73,28	250	0,293
3	74,25	250	0,297
Rata-rata			0,295 ± 0,002

2. Kerapatan Mampat

Interval Pengetukan	**Volume (ml)**	**Volume (ml)**	**Volume (ml)**
	1	**2**	**3**
10	243	244	244
500	233	230	227
1250	231	228	225
Kerapatan (g/ml)	$\frac{73{,}51\ g}{231\ mL}$ **= 0,3182**	$\frac{73{,}28\ g}{228\ mL}$ **=0,3214**	$\frac{74{,}25\ g}{225\ mL}$ **=0,3288**
Rata-rata (g/ml)	0,296 ± 0,006		

3. % Kompresibilitas

- Percobaan 1 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}3182-0{,}294}{0{,}3182} x\ 100\ \% = 7{,}6\ \%$

- Percobaan 2 = $\frac{Df-Do}{Do} x\ 100\ \%$

  $= \frac{0{,}3214-0{,}293}{0{,}3214} x\ 100\ \% = 8{,}83\ \%$

- Percobaan 3 = $\frac{Df-Do}{Do} x\ 100\ \%$

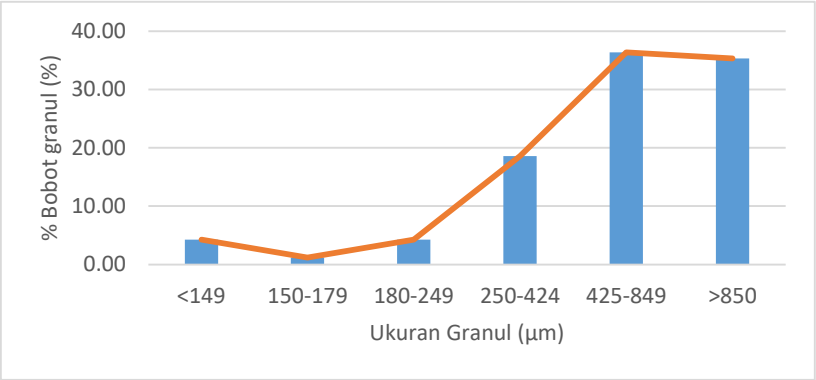
  $= \frac{0{,}3288-0{,}297}{0{,}3288} x\ 100\ \% = 9{,}67\ \%$

Distribusi Ukuran Partikel

a. Formula 1

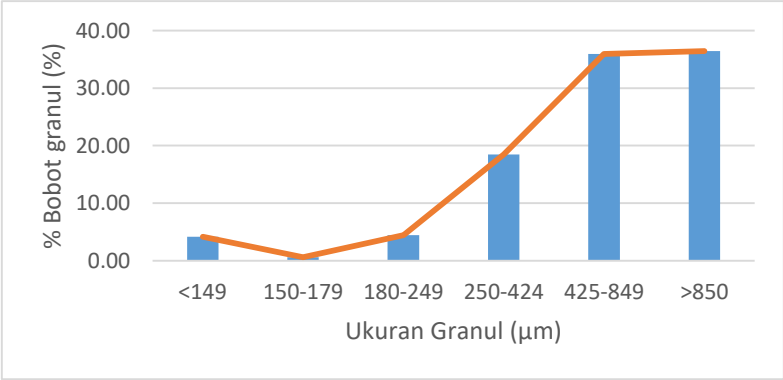
- Percobaan 1

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot Granul
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.5	349.78	4.28	4.28
100	150	290.96	292.18	1.22	1.22
80	180	363.87	368.13	4.26	4.26
60	250	410.44	429.02	18.58	18.57
40	425	410.44	446.82	36.38	36.36
20	850	424.01	459.34	35.33	35.31
			Total	100.05	



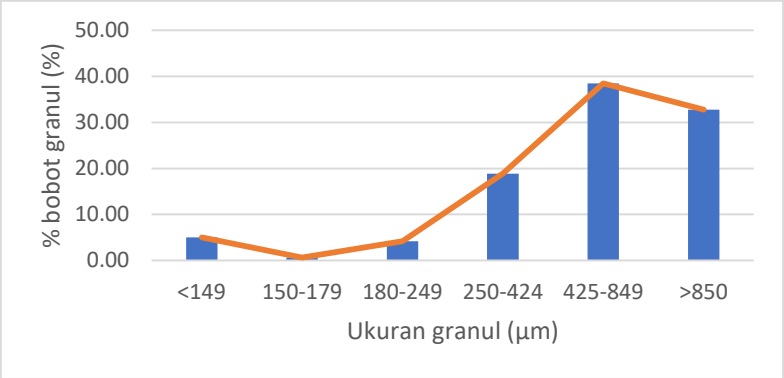
- Percobaan 2

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.51	349.67	4.16	4.16
100	150	291.03	291.61	0.58	0.58
80	180	363.88	368.33	4.45	4.45
60	250	410.49	428.94	18.45	18.44
40	425	410.47	446.41	35.94	35.93
20	850	424.04	460.49	36.45	36.44
			Total	100.03	



- Percobaan 3

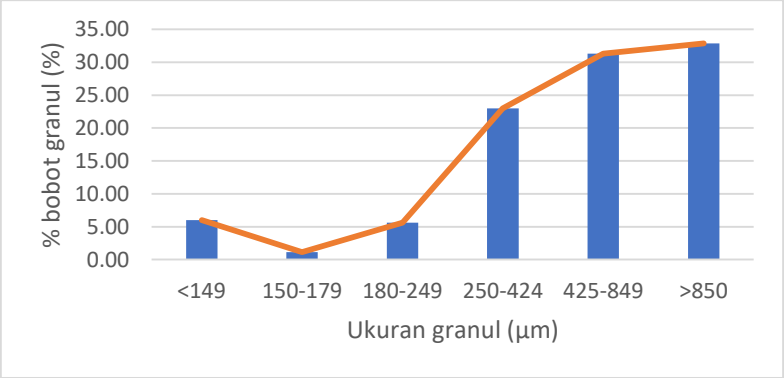
Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (100)		345.49	350.51	5.02	5.02
100	150	291.2	291.82	0.62	0.62
80	180	363.86	368.09	4.23	4.23
60	250	410.47	429.36	18.89	18.87
40	425	410.46	448.96	38.50	38.47
20	850	424.03	456.85	32.82	32.79
			Total	100.08	



b. Formula 2

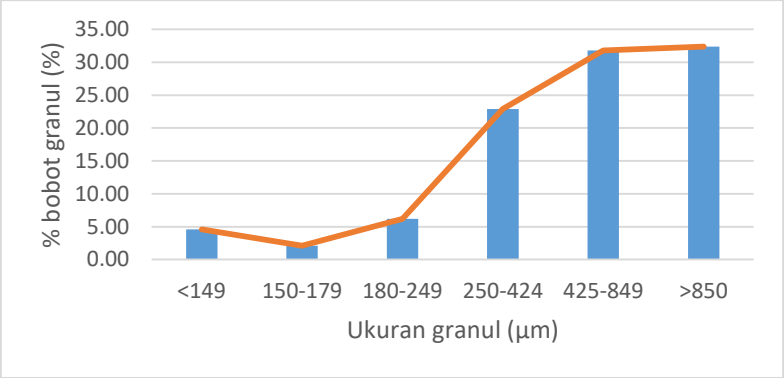
- Percobaan 1

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.343	351.35	6.007	6.00
100	150	290.93	292.08	1.15	1.15
80	180	363.84	369.48	5.64	5.64
60	250	410.49	433.49	23	22.99
40	425	410.47	441.82	31.35	31.33
20	850	424.07	456.98	32.91	32.89
			Total	100.06	



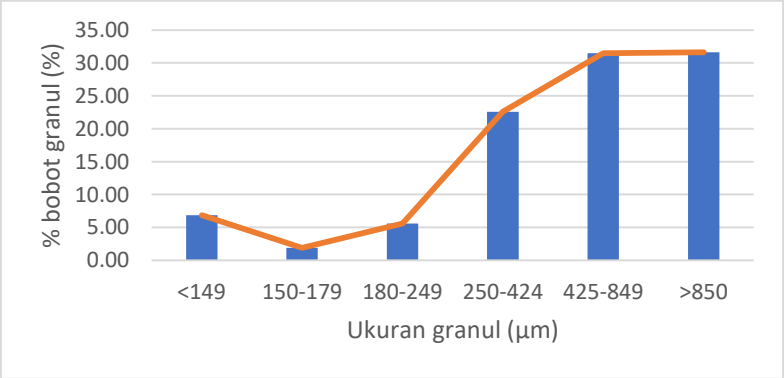
- Percobaan 2

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.41	349.98	4.57	4.57
100	150	290.94	293.06	2.12	2.12
80	180	363.85	370.06	6.21	6.21
60	250	410.41	433.29	22.88	22.88
40	425	410.42	442.25	31.83	31.82
20	850	423.98	456.39	32.41	32.40
			Total	100.02	



- Percobaan 3

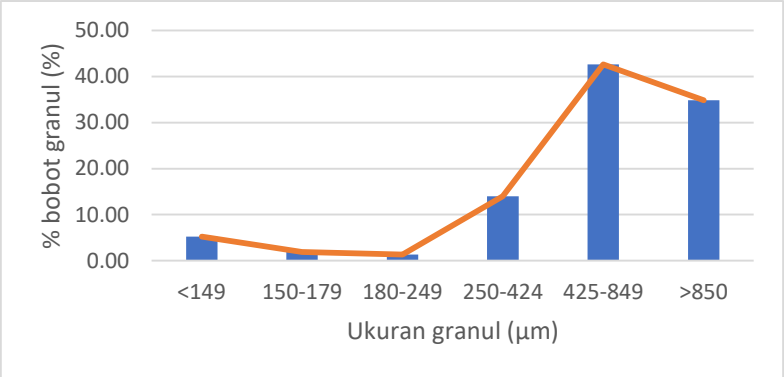
Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.37	352.23	6.86	6.86
100	150	290.87	292.76	1.89	1.89
80	180	363.77	369.36	5.59	5.59
60	250	410.36	432.95	22.59	22.57
40	425	410.36	441.84	31.48	31.46
20	850	423.96	455.62	31.66	31.64
			Total	100.07	



c. Formula 3

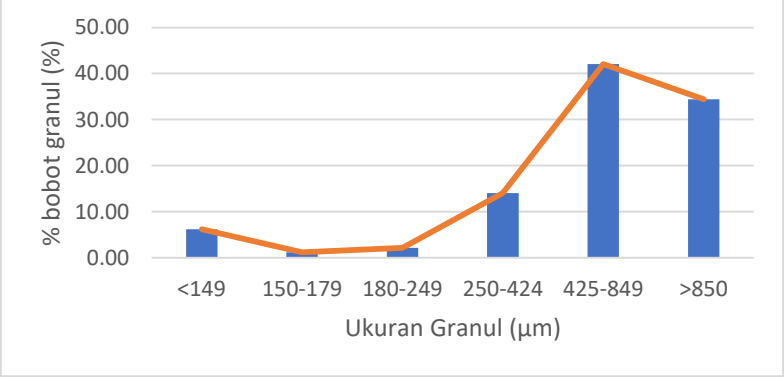
- Percobaan 1

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.36	350.62	5.26	5.26
100	150	291.35	293.25	1.90	1.90
80	180	363.79	365.15	1.36	1.36
60	250	410.33	424.33	14	13.99
40	425	410.36	453.04	42.68	42.66
20	850	423.95	458.79	34.84	34.83
			Total	100.04	



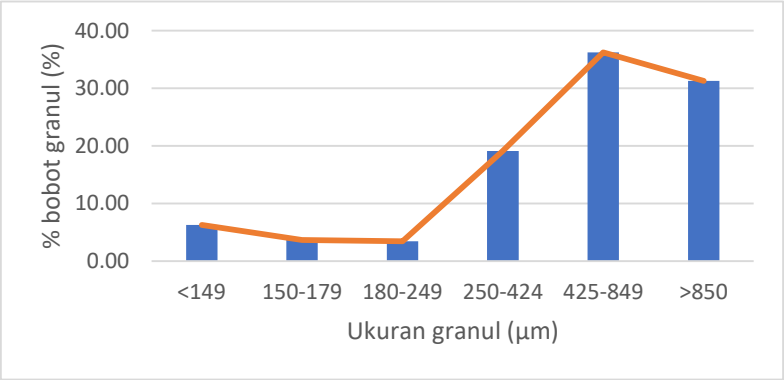
- Percobaan 2

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.37	351.53	6.16	6.16
100	150	291.52	292.69	1.17	1.17
80	180	363.81	365.98	2.17	2.17
60	250	410.36	424.42	14.06	14.05
40	425	410.37	452.46	42.09	42.07
20	850	423.94	458.33	34.39	34.38
			Total	100.04	



- Percobaan 3

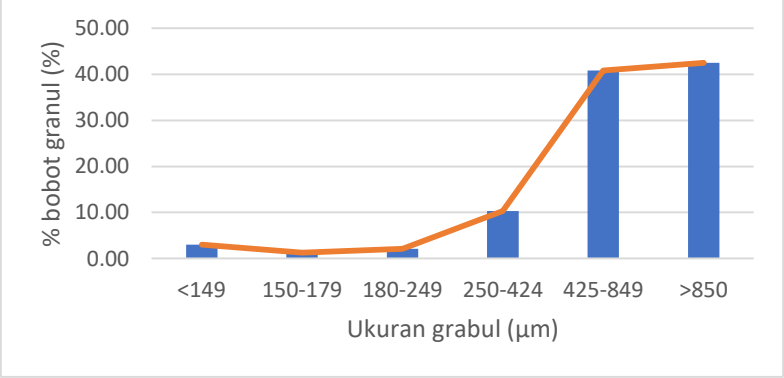
Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.38	351.69	6.31	6.26
100	150	291.00	294.68	3.68	3.65
80	180	363.8	367.25	3.45	3.42
60	250	410.36	429.64	19.28	19.11
40	425	410.39	446.96	36.57	36.25
20	850	423.94	455.52	31.58	31.31
			Total	100.87	



d. Formula 4

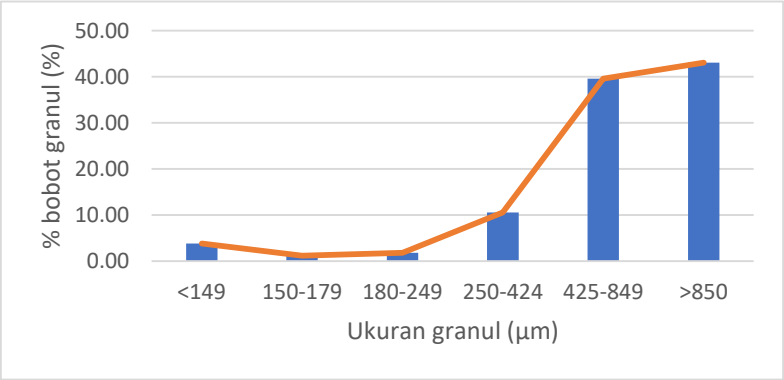
- Percobaan 1

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.34	348.33	2.99	2.99
100	150	291.42	292.68	1.26	1.26
80	180	363.8	365.87	2.07	2.07
60	250	410.39	420.71	10.32	10.31
40	425	410.38	451.25	40.87	40.84
20	850	423.94	466.5	42.56	42.53
			Total	100.07	



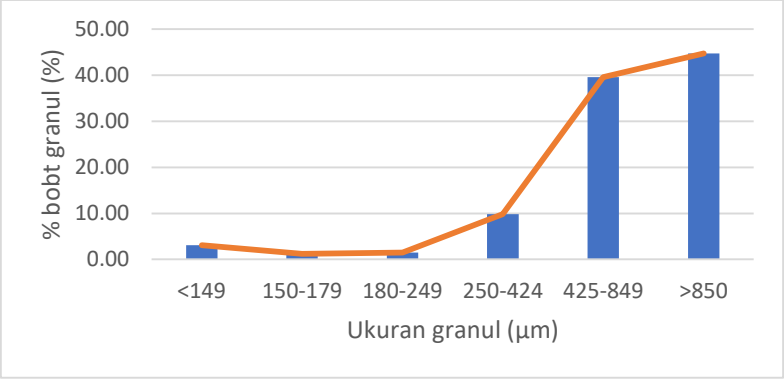
- Percobaan 2

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.34	349.15	3.81	3.81
100	150	291.24	292.38	1.14	1.14
80	180	363.76	365.56	1.8	1.80
60	250	410.33	420.86	10.53	10.53
40	425	410.37	449.99	39.62	39.61
20	850	424.03	467.15	43.12	43.11
				100.02	



- Percobaan 3

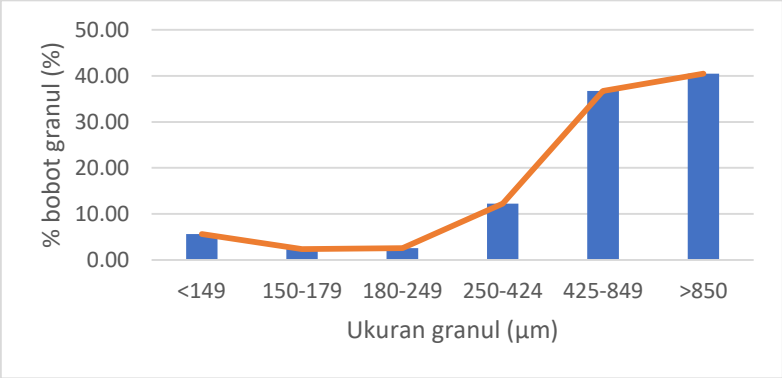
Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.37	348.48	3.11	3.11
100	150	291.13	292.35	1.22	1.22
80	180	363.8	365.28	1.48	1.48
60	250	410.35	420.22	9.87	9.87
40	425	410.4	449.99	39.59	39.58
20	850	423.98	468.73	44.75	44.74
				100.02	



e. Formula 5

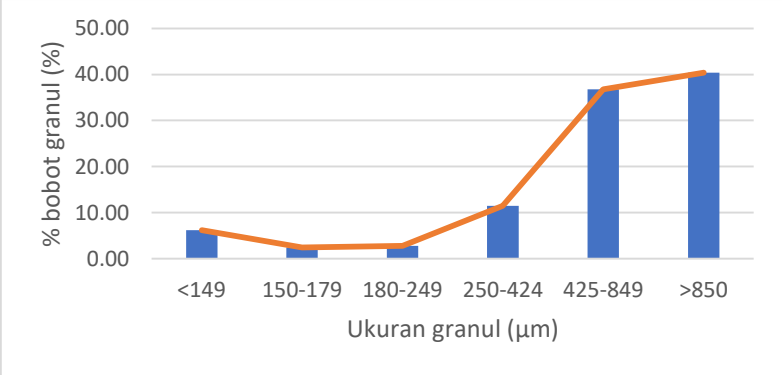
- Percobaan 1

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.31	350.95	5.64	5.64
100	150	291.10	293.45	2.35	2.35
80	180	363.74	366.32	2.58	2.58
60	250	410.3	422.52	12.22	12.22
40	425	410.36	447.10	36.74	36.73
20	850	423.95	464.45	40.5	40.49
				100.03	



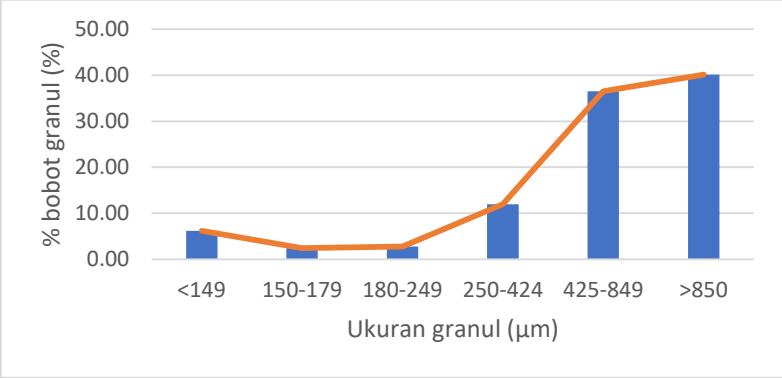
- Percobaan 2

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.34	351.64	6.3	6.19
100	150	291.09	293.54	2.45	2.45
80	180	363.78	366.56	2.78	2.78
60	250	410.3	421.75	11.45	11.45
40	425	410.35	447.12	36.77	36.76
20	850	423.95	464.35	40.4	40.38
				100.15	



- Percobaan 3

Pengayakan			Bobot Pengayakan+Granul (gram)	Bobot Granul (gram)	% Bobot
No. Mesh	Diameter Lubang	Bobot (gram)			
Pan (>100)		345.38	351.59	6.21	6.20
100	150	291.02	293.44	2.42	2.42
80	180	363.79	366.56	2.77	2.77
60	250	410.34	422.32	11.98	11.97
40	425	410.37	446.92	36.55	36.52
20	850	423.96	464.12	40.16	40.12
				100.09	



Lampiran 7. Dokumentasi Hasil Evaluasi Sediaan Granul

Organoleptik


F 1


F 2


F 3


F 4

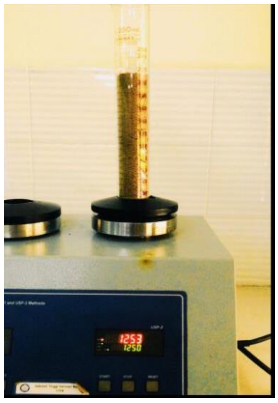

F 5

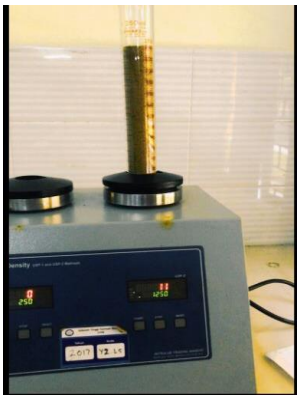
Kadar Air

Laju Alir

Sudut Istirahat

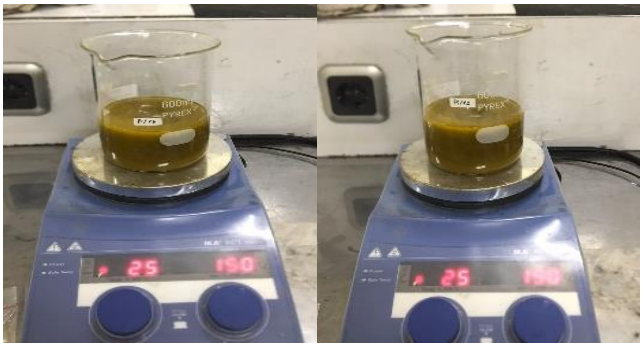
Kerapatan Nyata, Ruahan dan Kompresibilitas





Distribusi Ukuiran Partikel

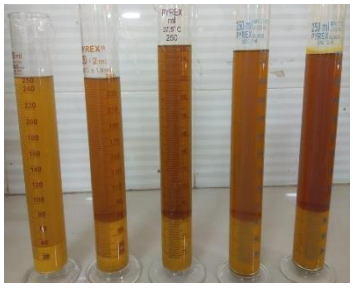
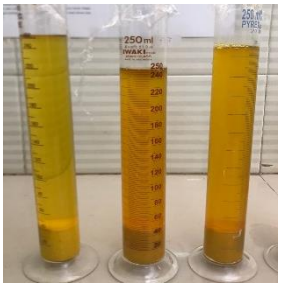
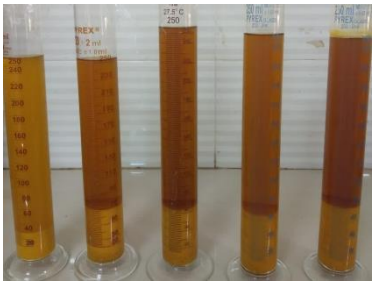

Kelarutan

pH



Volume Sedimentasi

Uji Hedonik



Lampiran 8. Inform Consent dan Form Penilaian Uji Hedonik

1. Inform Consent

LEMBAR PERSETUJUAN PANELIS

(*INFORMED CONSENT*)

Saya Yogi Pangestu adalah mahasiswa Program Studi Sarjana Farmasi Universitas Bhati Kencana Bandung, saat ini sedang melakukan pengambilan data untuk uji hedonik pada produk minuman granul instan dari kombinasi ekstrak daun katuk dan rimpang kunyit. Kegiatan ini dilakukan untuk melengkapi data Laporan Tugas Akhir yang mana menjadi salah satu syarat dalam memperoleh gelar Sarjana Farmasi dengan judul penelitian "**Optimasi Formula Sediaan Granul Instan dari Kombinasi Ekstrak Daun Katuk (*Sauropus androgynous* (L) Merr.) Dan Ekstrak Rimpang Kunyit (*Curucum longa* L.) Dengan Menggunakan Metode Granulasi Basah Yang Berkhasiat Sebagai Antioksidan"** Oleh karena itu, saya memohon kesediaan waktu rekan-rekan untuk menjadi panelis. Perlu saya informasikan bahwa keikut sertaan rekan-rekan sebagai panelis bersifat sukarela. Oleh karena itu, saya memohon kesediaan waktu rekan-rekan untuk mengisi formulir penilaian kesukaan terhadap produk yang disajikan. Saya akan merahasiakan seluruh informasi yang rekan-rekan berikan. Atas kerja samanya saya ucapkan terimakasih.

Informed Consent

Setelah mendapat penjelasan mengenai tujuan dan manfaat pengambilan data tersebut, dengan ini saya

Nama :

Umur :

Jenis Kelamin :

Dengan ini menyatakan bersedia menjadi panelis penelitian dari :

Nama :

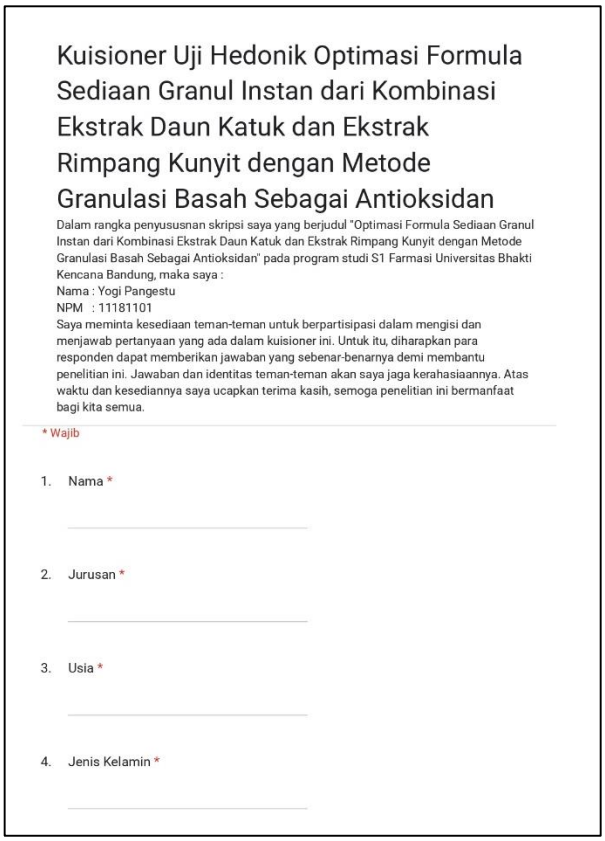
NIM :

Produk : Minuman Granul Instan dari Kombinasi Ekstrak Daun Katuk dan Rimpang Kunyit

Bandung, 2022

(Panelis)

2. Form Penilaian Uji Hedonik

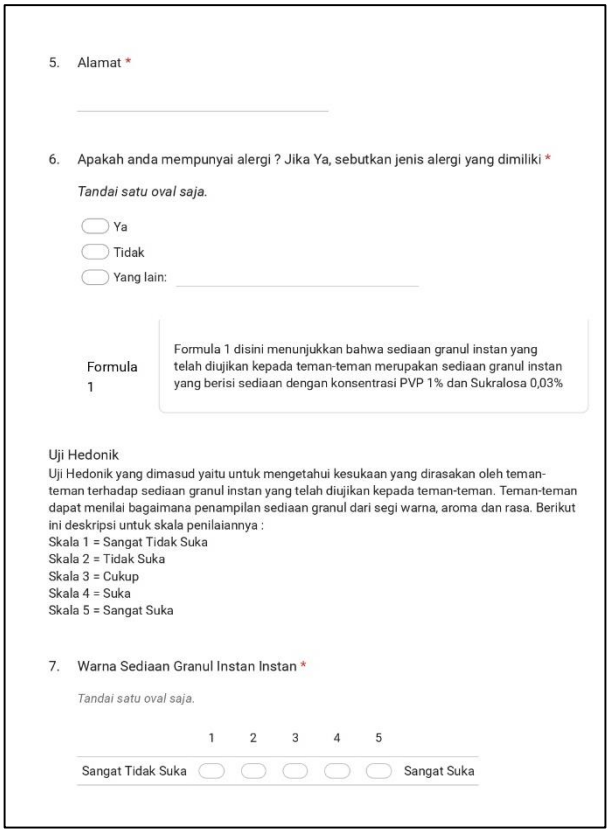


Kuisioner Uji Hedonik Optimasi Formula Sediaan Granul Instan dari Kombinasi Ekstrak Daun Katuk dan Ekstrak Rimpang Kunyit dengan Metode Granulasi Basah Sebagai Antioksidan

Dalam rangka penyususnan skripsi saya yang berjudul "Optimasi Formula Sediaan Granul Instan dari Kombinasi Ekstrak Daun Katuk dan Ekstrak Rimpang Kunyit dengan Metode Granulasi Basah Sebagai Antioksidan" pada program studi S1 Farmasi Universitas Bhakti Kencana Bandung, maka saya :
Nama : Yogi Pangestu
NPM : 11181101
Saya meminta kesediaan teman-teman untuk berpartisipasi dalam mengisi dan menjawab pertanyaan yang ada dalam kuisioner ini. Untuk itu, diharapkan para responden dapat memberikan jawaban yang sebenar-benarnya demi membantu penelitian ini. Jawaban dan identitas teman-teman akan saya jaga kerahasiaannya. Atas waktu dan kesediannya saya ucapkan terima kasih, semoga penelitian ini bermanfaat bagi kita semua.

* Wajib

1. Nama *
2. Jurusan *
3. Usia *
4. Jenis Kelamin *



5. Alamat *
6. Apakah anda mempunyai alergi ? Jika Ya, sebutkan jenis alergi yang dimiliki *

Tandai satu oval saja.

- Ya
- Tidak
- Yang lain:

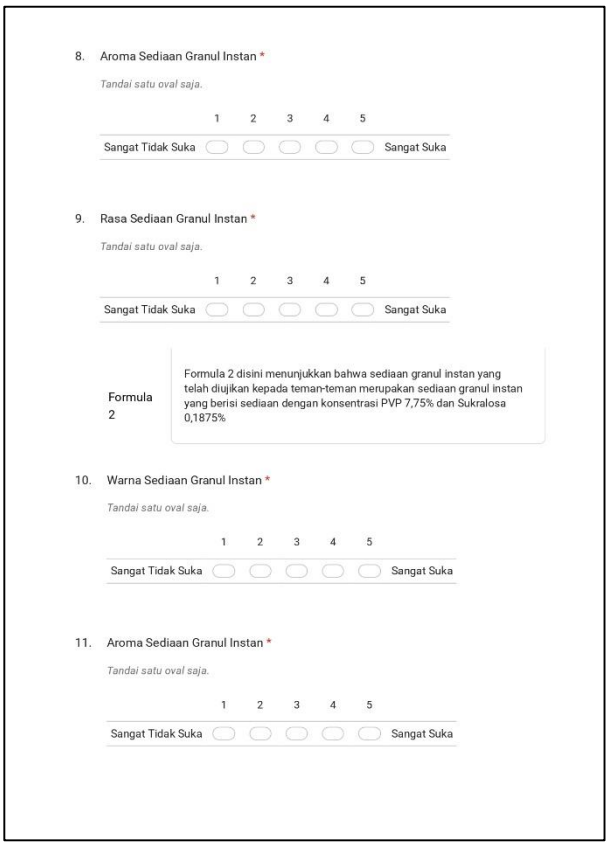
Formula 1 — Formula 1 disini menunjukkan bahwa sediaan granul instan yang telah diujikan kepada teman-teman merupakan sediaan granul instan yang berisi sediaan dengan konsentrasi PVP 1% dan Sukralosa 0,03%

Uji Hedonik
Uji Hedonik yang dimasud yaitu untuk mengetahui kesukaan yang dirasakan oleh teman-teman terhadap sediaan granul instan yang telah diujikan kepada teman-teman. Teman-teman dapat menilai bagaimana penampilan sediaan granul dari segi warna, aroma dan rasa. Berikut ini deskripsi untuk skala penilaiannya :
Skala 1 = Sangat Tidak Suka
Skala 2 = Tidak Suka
Skala 3 = Cukup
Skala 4 = Suka
Skala 5 = Sangat Suka

7. Warna Sediaan Granul Instan Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka



8. Aroma Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

9. Rasa Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

Formula 2 — Formula 2 disini menunjukkan bahwa sediaan granul instan yang telah diujikan kepada teman-teman merupakan sediaan granul instan yang berisi sediaan dengan konsentrasi PVP 7,75% dan Sukralosa 0,1875%

10. Warna Sediaan Granul Instan *

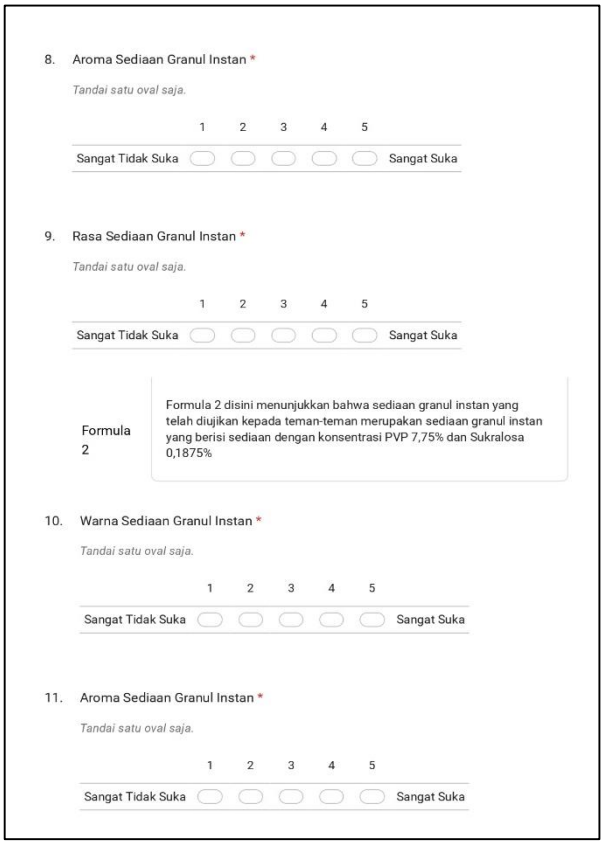
Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

11. Aroma Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka



8. Aroma Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

9. Rasa Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

Formula 2 — Formula 2 disini menunjukkan bahwa sediaan granul instan yang telah diujikan kepada teman-teman merupakan sediaan granul instan yang berisi sediaan dengan konsentrasi PVP 7,75% dan Sukralosa 0,1875%

10. Warna Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

11. Aroma Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

Formula 4

Formula 4 disini menunjukkan bahwa sediaan granul instan yang telah diujikan kepada teman-teman merupakan sediaan granul instan yang berisi sediaan dengan konsentrasi PVP 10% dan Sukralosa 0,24%

16. Warna Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

17. Aroma Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

18. Rasa Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

Formula 5

Formula 5 disini menunjukkan bahwa sediaan granul instan yang telah diujikan kepada teman-teman merupakan sediaan granul instan yang berisi sediaan dengan konsentrasi PVP 5,5% dan Sukralosa 0,135%

19. Aroma Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

20. Aroma Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

21. Rasa Sediaan Granul Instan *

Tandai satu oval saja.

	1	2	3	4	5	
Sangat Tidak Suka	◯	◯	◯	◯	◯	Sangat Suka

Lampiran 9. Perhitungan Pengenceran Antioksidan

Perhitungan dalam konsentrasi DPPH

1. Pembuatan larutan induk DPPH (1000 µg/mL)
   25 mg serbuk mg dilarutkan dalam methanol *pro analysis* sebanyak 50 mL

Perhitungan Sampel dan control positif dalam Uji Aktivitas Antioksidan

1. Pembuatan larutan induk sampel
   Pembuatan konsentrasi 500 µg/mL dimulai dengan menimbang 25 mg ekstrak dalam 25 mL methanol p.a.
2. Pembuatan larutan induk pembanding (asam askorbat_
   Pembuatan konsentrasi 500 µg/mL dimulai dengan menimbang 25 mg asam askorbat dan ditambah dengan methanol p.a sampai 25 mL.
3. Perhitungan larutan uji
   a) Ekstrak rimpang kunyit, katuk, dan sediaan granul (20, 40, 60, 80, 100, 120 µg/mL)
      Larutan induk ekstrak katuk, ektrak rimpang kunyit dan sediaan granul instan 500 µg/mL, kemudian di pipet dan masukan dalam labu ukur 10 ml
      - Konsentrasi 20 µg/mL
        N_1 x V_1 = N_2 x V_2
        500 x V_1 = 20 x 10
        V_1 = 0,4 ml atau 400 µL
      - Konsentrasi 40 µg/mL
        N_1 x V_1 = N_2 x V_2
        500 x V_1 = 40 x 10
        V_1 = 0,8 ml atau 800 µL
      - Konsentrasi 60 µg/mL
        N_1 x V_1 = N_2 x V_2
        500 x V_1 = 60 x 10
        V_1 = 1,2 ml atau 1200 µL
      - Konsentrasi 80 µg/mL
        N_1 x V_1 = N_2 x V_2
        500 x V_1 = 80 x 10
        V_1 = 1,6 ml atau 1600 µL
      - Konsentrasi 100 µg/mL
        N_1 x V_1 = N_2 x V_2

500 x V_1 = 100 x 10

V_1 = 2 ml atau 2000 µL

b) Perhitungan perkombinasian antara ekstrak rimpang kunyit dan katuk, yang diambil dari setengah konsentrasi ekstrak tunggal.

- Konsentrasi 10 µg/mL

  N_1 x V_1 = N_2 x V_2

  500 x V_1 = 10 x 10

  V_1 = 0,2 ml atau 200 µL

- Konsentrasi 20 µg/mL

  N_1 x V_1 = N_2 x V_2

  500 x V_1 = 20 x 10

  V_1 = 0,4 ml atau 400 µL

- Konsentrasi 30 µg/mL

  N_1 x V_1 = N_2 x V_2

  500 x V_1 = 30 x 10

  V_1 = 0,6 ml atau 600 µL

- Konsentrasi 40 µg/mL

  N_1 x V_1 = N_2 x V_2

  500 x V_1 = 40 x 10

  V_1 = 0,8 ml atau 800 µL

- Konsentrasi 50 µg/mL

  N_1 x V_1 = N_2 x V_2

  500 x V_1 = 50 x 10

  V_1 = 1 ml atau 1000 µL

c) Perhitungan larutan control positif Vit-C (1,2,3,4,5,6 µg/mL)

Larutan induk pembanding (Vit-C) adalah 500 µg/mL, kemudian di pipet dan masukkan kedalam labu ukur 10 ml

- Konsentrasi 1 µg/mL.

  N_1 x V_1 = N_2 x V_2

  500 x V_1 = 1 x 10

  V_1 = 0,02ml atau 20 µL

- Konsentrasi 2 µg/mL

  N_1 x V_1 = N_2 x V_2

500 x V_1 = 2 x 10

V_1 = 0,04 ml atau 40 µL

- Konsentrasi 3

N_1 x V_1 = N_2 x V_2

500 x V_1 = 3 x 10

V_1 = 0,06 ml atau 60 µL

- Konsentrasi 4

N_1 x V_1 = N_2 x V_2

500 x V_1 = 4 x 10

V_1 = 0,08 ml atau 80 µL

- Konsentrasi 5

N_1 x V_1 = N_2 x V_2

500 x V_1 = 5 x 10

V_1 = 0,1ml atau 100 µL

- Konsentrasi 6

N_1 x V_1 = N_2 x V_2

500 x V_1 = 6 x 10

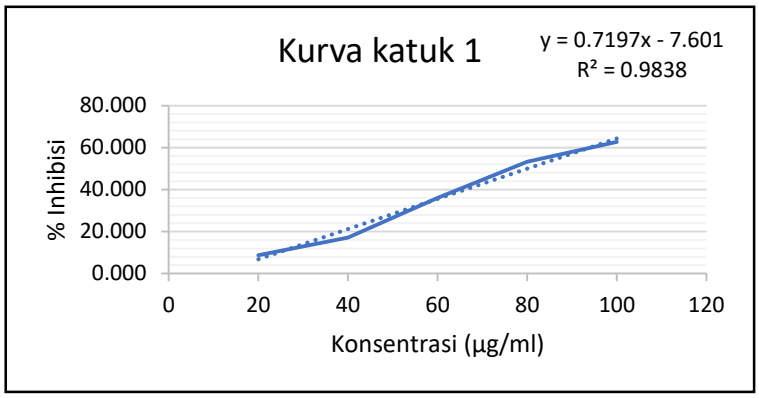
V_1 = 0,12 ml atau 120 µL

Lampiran 10. Data Hasil Aktivitas Antioksidan

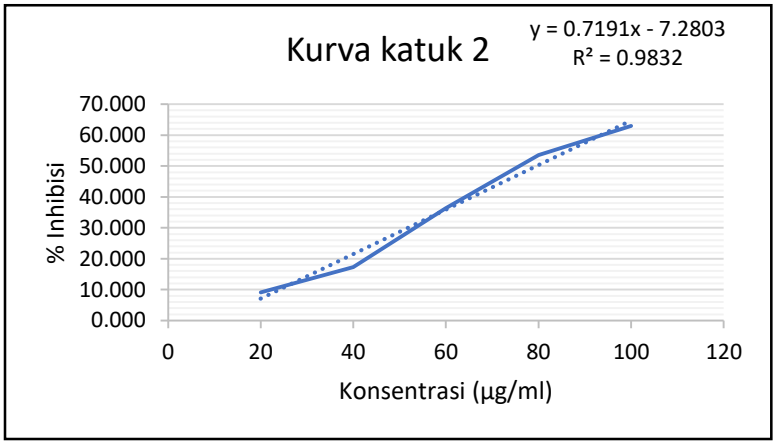
Konsentrasi	Abs Kontrol	Abs Sampel			%Inhibisi			IC50			Rata-rata IC50	SD
		1	2	3	1	2	3	1	2	3		
KATUK												
20	0,842	0,768	0,765	0,769	8,789	9,145	8,670					
40	0,842	0,698	0,696	0,697	17,102	17,340	17,221					
60	0,842	0,538	0,536	0,535	36,105	36,342	36,461	80,035	79,656	79,752	79,814	0,20
80	0,842	0,394	0,391	0,392	53,207	53,563	53,444					
100	0,842	0,314	0,312	0,313	62,708	62,945	62,827					
KUNYIT												
20	0,842	0,674	0,676	0,675	19,952	19,715	19,834					
40	0,842	0,523	0,520	0,521	37,886	38,242	38,124					
60	0,842	0,426	0,424	0,422	49,406	49,644	49,881	59,931	59,761	59,601	59,764	0,17
80	0,842	0,273	0,272	0,270	67,577	67,696	67,933					
100	0,842	0,207	0,206	0,205	75,416	75,534	75,653					
KOMBINASI EKSTRAK												
10	0,866	0,823	0,818	0,831	4,965	5,543	4,042					
20	0,866	0,688	0,685	0,689	20,554	20,901	20,439					
30	0,866	0,578	0,570	0,577	33,256	34,180	33,372	45,331	45,496	45,518	45,448	0,10
40	0,866	0,498	0,502	0,505	42,494	42,032	41,686					
50	0,866	0,389	0,392	0,390	55,081	54,734	54,965					
GRANUL												
20	0,832	0,745	0,746	0,741	10,457	10,337	10,938					
40	0,832	0,698	0,700	0,699	16,106	15,865	15,986					
60	0,832	0,646	0,648	0,644	22,356	22,115	22,596					
80	0,832	0,501	0,500	0,505	39,784	39,904	39,303	113,571	112,590	115,248	113,803	1,34
100	0,832	0,478	0,479	0,480	42,548	42,428	42,308					

Lampiran 11. Kurva Hubungan Konsentrasi dengan % Inhibisi Ekstrak katuk kunyit, kombinasi dan Sediaan Granul Instan

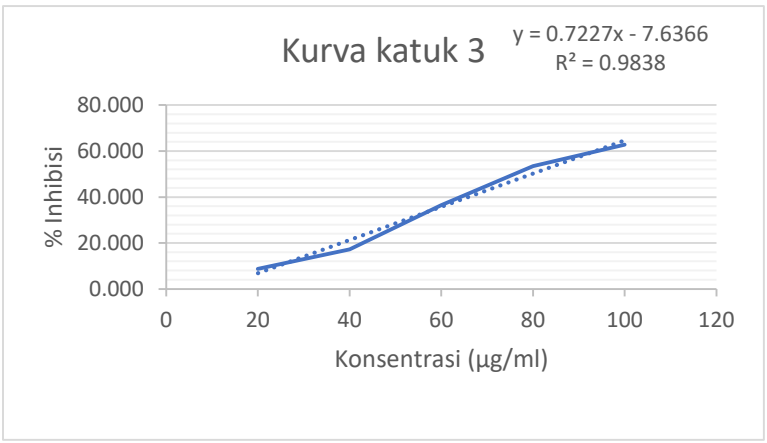
1. Ekstrak Tunggal Katuk
   - Percobaan 1



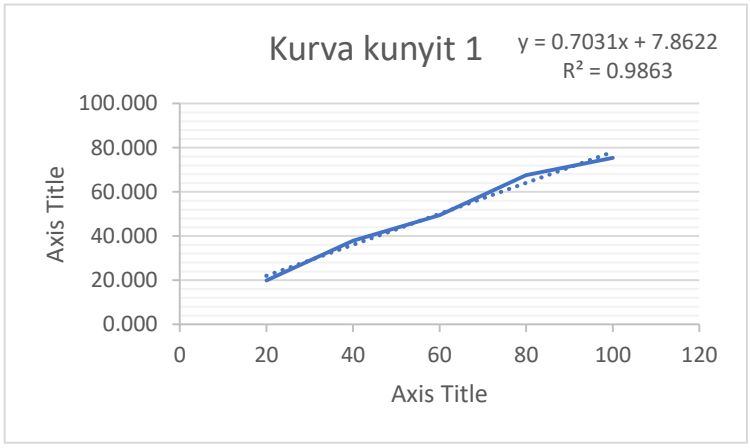
   - Pengulangan 2



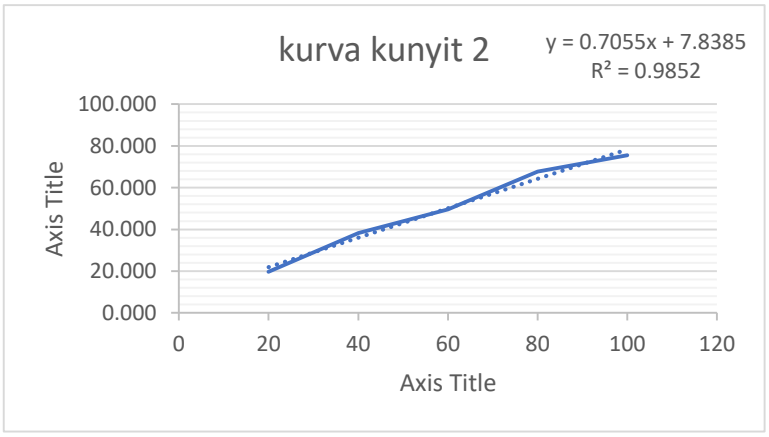
   - Pengulangan 3



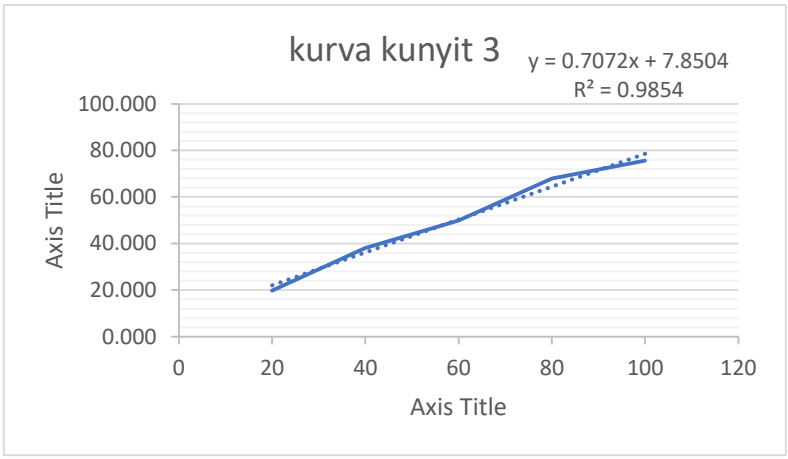
2. Ekstrak Tunggal Kunyit
   - Pengulangan 1



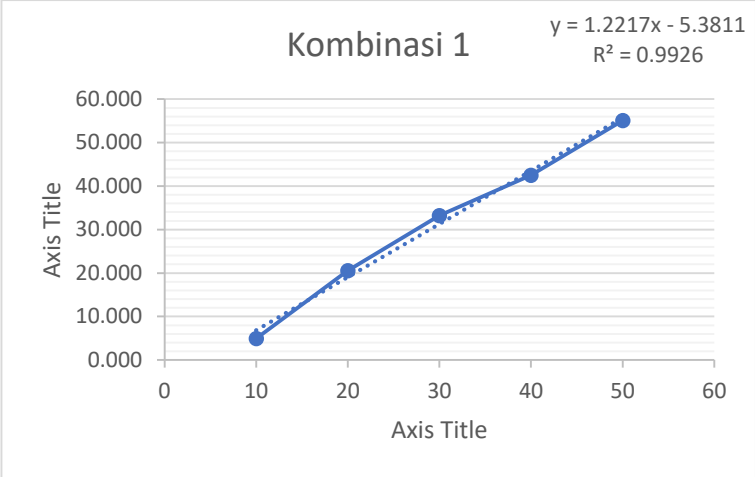
   - Pengulangan 2



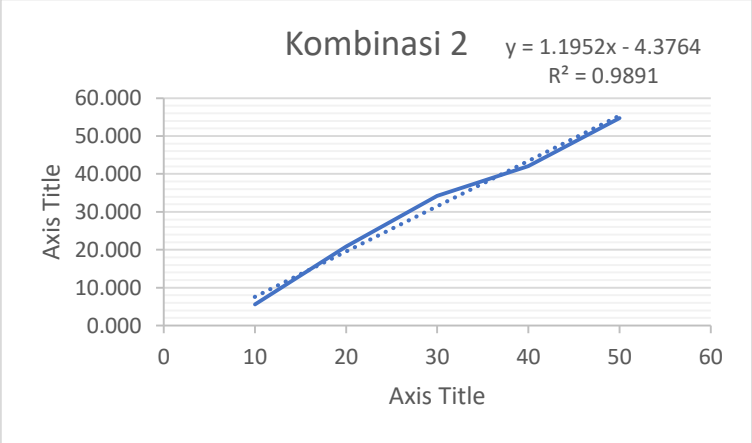
   - Pengulangan 3



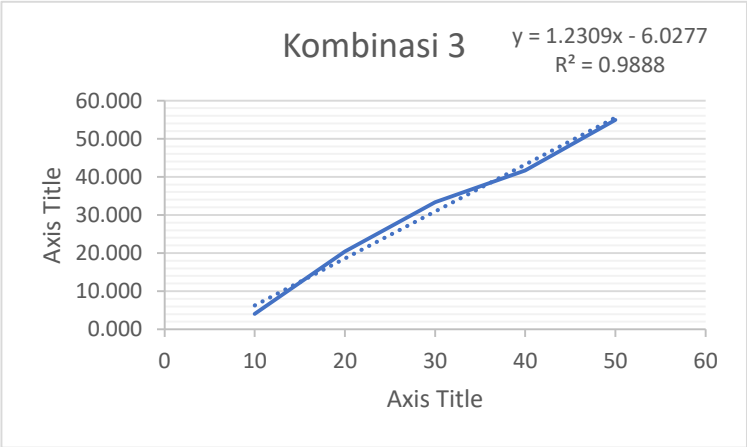
3. Kombinasi Ekstrak Katuk dan Kunyit
   - Pengulangan 1



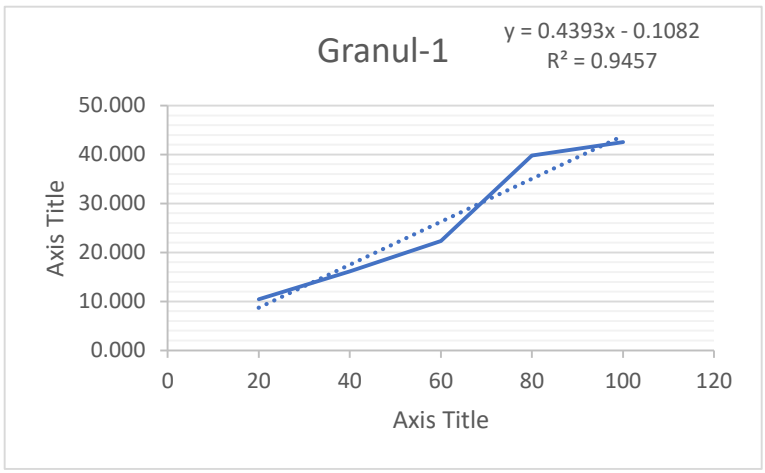
   - Pengulangan 2



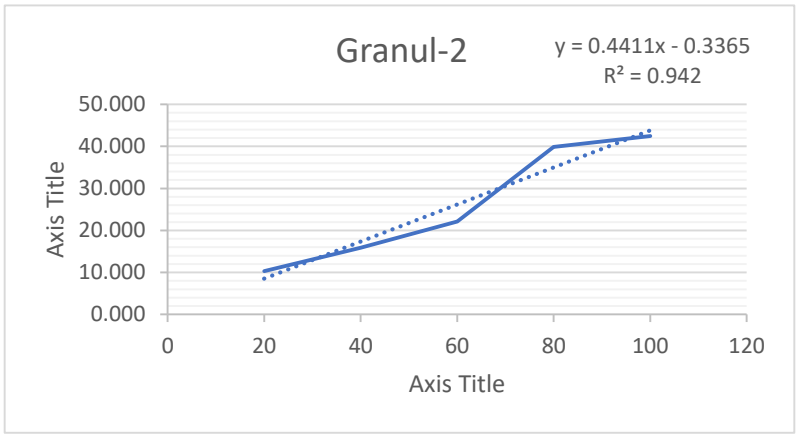
   - Pengulangan 3



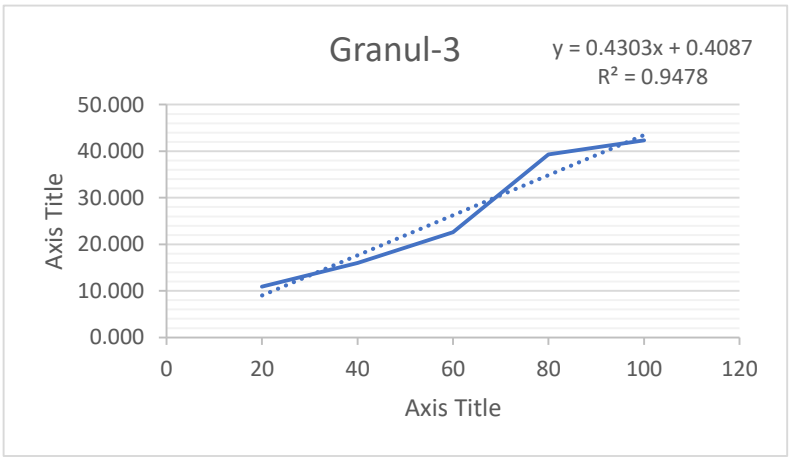
4. Sediaan Granul Instan
   - Pengulangan 1



   - Pengulangan 2



   - Pengulangan 3



Lampiran 12. Hasil Statistik Evaluasi Sediaan Granul Instan dan Uji Hedonik

Hasil Statistik Evaluasi Sediaan Granul Instan

1. Kadar Air

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_LOD	Formula 1	.248	3	.	.968	3	.659
	Formula 2	.192	3	.	.997	3	.894
	Formula 3	.175	3	.	1.000	3	1.000
	Formula 4	.175	3	.	1.000	3	1.000
	Formula 5	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Uji_LOD

Levene Statistic	df1	df2	Sig.
2.188	4	10	.144

ANOVA

Uji_LOD

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.278	4	.069	1.910	.185
Within Groups	.364	10	.036		
Total	.641	14			

2. Uji Laju Alir

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Laju_Alir	Formula 1	.368	3	.	.792	3	.094
	Formula 2	.330	3	.	.866	3	.286
	Formula 3	.280	3	.	.938	3	.520
	Formula 4	.267	3	.	.952	3	.577
	Formula 5	.268	3	.	.951	3	.572

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Laju_Alir

Levene Statistic	df1	df2	Sig.
1.855	4	10	.195

ANOVA

Laju_Alir

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.651	4	.413	50.346	.000
Within Groups	.082	10	.008		
Total	1.733	14			

Multiple Comparisons

Dependent Variable: Uji_Laju_Alir

	(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Formula 1	Formula 2	-.58000*	.07392	.000	-.7447	-.4153
		Formula 3	-.01900	.07392	.802	-.1837	.1457
		Formula 4	.33067*	.07392	.001	.1660	.4954
		Formula 5	.32367*	.07392	.001	.1590	.4884
	Formula 2	Formula 1	.58000*	.07392	.000	.4153	.7447
		Formula 3	.56100*	.07392	.000	.3963	.7257
		Formula 4	.91067*	.07392	.000	.7460	1.0754
		Formula 5	.90367*	.07392	.000	.7390	1.0684
	Formula 3	Formula 1	.01900	.07392	.802	-.1457	.1837
		Formula 2	-.56100*	.07392	.000	-.7257	-.3963
		Formula 4	.34967*	.07392	.001	.1850	.5144
		Formula 5	.34267*	.07392	.001	.1780	.5074
	Formula 4	Formula 1	-.33067*	.07392	.001	-.4954	-.1660
		Formula 2	-.91067*	.07392	.000	-1.0754	-.7460
		Formula 3	-.34967*	.07392	.001	-.5144	-.1850
		Formula 5	-.00700	.07392	.926	-.1717	.1577
	Formula 5	Formula 1	-.32367*	.07392	.001	-.4884	-.1590
		Formula 2	-.90367*	.07392	.000	-1.0684	-.7390
		Formula 3	-.34267*	.07392	.001	-.5074	-.1780
		Formula 4	.00700	.07392	.926	-.1577	.1717

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

3. Uji Sudut Diam

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_Sudut_Istirahat	Formula 1	.289	3	.	.927	3	.478
	Formula 2	.225	3	.	.984	3	.756
	Formula 3	.193	3	.	.997	3	.890
	Formula 4	.214	3	.	.989	3	.802
	Formula 5	.328	3	.	.871	3	.297

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Uji_Sudut_Istirahat

Levene Statistic	df1	df2	Sig.
1.679	4	10	.231

ANOVA

Uji_Sudut_Istirahat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29.516	4	7.379	46.464	.000
Within Groups	1.588	10	.159		
Total	31.104	14			

Multiple Comparisons

Dependent Variable: Uji_Sudut_Istirahat

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	3.00667*	.32538	.000	2.2817	3.7317
	Formula 3	.88667*	.32538	.021	.1617	1.6117
	Formula 4	2.20633*	.32538	.000	1.4813	2.9313
	Formula 5	3.88233*	.32538	.000	3.1573	4.6073
Formula 2	Formula 1	-3.00667*	.32538	.000	-3.7317	-2.2817
	Formula 3	-2.12000*	.32538	.000	-2.8450	-1.3950
	Formula 4	-.80033*	.32538	.034	-1.5253	-.0753
	Formula 5	.87567*	.32538	.023	.1507	1.6007
Formula 3	Formula 1	-.88667*	.32538	.021	-1.6117	-.1617
	Formula 2	2.12000*	.32538	.000	1.3950	2.8450
	Formula 4	1.31967*	.32538	.002	.5947	2.0447
	Formula 5	2.99567*	.32538	.000	2.2707	3.7207
Formula 4	Formula 1	-2.20633*	.32538	.000	-2.9313	-1.4813
	Formula 2	.80033*	.32538	.034	.0753	1.5253
	Formula 3	-1.31967*	.32538	.002	-2.0447	-.5947
	Formula 5	1.67600*	.32538	.000	.9510	2.4010
Formula 5	Formula 1	-3.88233*	.32538	.000	-4.6073	-3.1573
	Formula 2	-.87567*	.32538	.023	-1.6007	-.1507
	Formula 3	-2.99567*	.32538	.000	-3.7207	-2.2707
	Formula 4	-1.67600*	.32538	.000	-2.4010	-.9510

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

4. Uji Kompresibilitas

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_Kompresibilitas	Formula 1	.243	3	.	.972	3	.678
	Formula 2	.192	3	.	.997	3	.893
	Formula 3	.184	3	.	.999	3	.927
	Formula 4	.266	3	.	.953	3	.582
	Formula 5	.216	3	.	.988	3	.793

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Uji_Kompresibilitas

Levene Statistic	df1	df2	Sig.
1.392	4	10	.305

ANOVA

Uji_Kompresibilitas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	48.575	4	12.144	13.399	.001
Within Groups	9.064	10	.906		
Total	57.639	14			

Multiple Comparisons

Dependent Variable: Uji_Kompresibilitas

	(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Formula 1	Formula 2	2.35333*	.77733	.013	.6213	4.0853
		Formula 3	2.11667*	.77733	.021	.3847	3.8487
		Formula 4	3.53333*	.77733	.001	1.8013	5.2653
		Formula 5	5.48333*	.77733	.000	3.7513	7.2153
	Formula 2	Formula 1	-2.35333*	.77733	.013	-4.0853	-.6213
		Formula 3	-.23667	.77733	.767	-1.9687	1.4953
		Formula 4	1.18000	.77733	.160	-.5520	2.9120
		Formula 5	3.13000*	.77733	.002	1.3980	4.8620
	Formula 3	Formula 1	-2.11667*	.77733	.021	-3.8487	-.3847
		Formula 2	.23667	.77733	.767	-1.4953	1.9687
		Formula 4	1.41667	.77733	.098	-.3153	3.1487
		Formula 5	3.36667*	.77733	.001	1.6347	5.0987
	Formula 4	Formula 1	-3.53333*	.77733	.001	-5.2653	-1.8013
		Formula 2	-1.18000	.77733	.160	-2.9120	.5520
		Formula 3	-1.41667	.77733	.098	-3.1487	.3153
		Formula 5	1.95000*	.77733	.031	.2180	3.6820
	Formula 5	Formula 1	-5.48333*	.77733	.000	-7.2153	-3.7513
		Formula 2	-3.13000*	.77733	.002	-4.8620	-1.3980
		Formula 3	-3.36667*	.77733	.001	-5.0987	-1.6347
		Formula 4	-1.95000*	.77733	.031	-3.6820	-.2180

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

5. Uji Distribusi Ukuran Partikel

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_Distribusi_Ukuran_Partikel	Formula 1	.338	3	.	.852	3	.247
	Formula 2	.232	3	.	.980	3	.727
	Formula 3	.353	3	.	.824	3	.174
	Formula 4	.335	3	.	.857	3	.260
	Formula 5	.329	3	.	.869	3	.294

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Uji_Distribusi_Ukuran_Partikel

Levene Statistic	df1	df2	Sig.
1.749	4	10	.216

ANOVA

Uji_Distribusi_Ukuran_Partikel

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.919	4	4.230	9.685	.002
Within Groups	4.367	10	.437		
Total	21.287	14			

Multiple Comparisons

Dependent Variable: Uji_Distribusi_Ukuran_Partikel

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-1.32333*	.53958	.034	-2.5256	-.1211
	Formula 3	-1.40667*	.53958	.026	-2.6089	-.2044
	Formula 4	1.18333	.53958	.053	-.0189	2.3856
	Formula 5	-1.56333*	.53958	.016	-2.7656	-.3611
Formula 2	Formula 1	1.32333*	.53958	.034	.1211	2.5256
	Formula 3	-.08333	.53958	.880	-1.2856	1.1189
	Formula 4	2.50667*	.53958	.001	1.3044	3.7089
	Formula 5	-.24000	.53958	.666	-1.4423	.9623
Formula 3	Formula 1	1.40667*	.53958	.026	.2044	2.6089
	Formula 2	.08333	.53958	.880	-1.1189	1.2856
	Formula 4	2.59000*	.53958	.001	1.3877	3.7923
	Formula 5	-.15667	.53958	.777	-1.3589	1.0456
Formula 4	Formula 1	-1.18333	.53958	.053	-2.3856	.0189
	Formula 2	-2.50667*	.53958	.001	-3.7089	-1.3044
	Formula 3	-2.59000*	.53958	.001	-3.7923	-1.3877
	Formula 5	-2.74667*	.53958	.000	-3.9489	-1.5444
Formula 5	Formula 1	1.56333*	.53958	.016	.3611	2.7656
	Formula 2	.24000	.53958	.666	-.9623	1.4423
	Formula 3	.15667	.53958	.777	-1.0456	1.3589
	Formula 4	2.74667*	.53958	.000	1.5444	3.9489

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

6. Uji Kelarutan

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_Kelarutan	Formula 1	.215	3	.	.989	3	.800
	Formula 2	.200	3	.	.995	3	.862
	Formula 3	.175	3	.	1.000	3	1.000
	Formula 4	.257	3	.	.960	3	.618
	Formula 5	.276	3	.	.942	3	.537

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Uji_Kelarutan

Levene Statistic	df1	df2	Sig.
.956	4	10	.472

ANOVA

Uji_Kelarutan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.148	4	.037	2.496	.110
Within Groups	.148	10	.015		
Total	.296	14			

7. Uji pH

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_PH	Formula 1	.182	3	.	.999	3	.935
	Formula 2	.272	3	.	.947	3	.554
	Formula 3	.324	3	.	.878	3	.317
	Formula 4	.191	3	.	.997	3	.900
	Formula 5	.243	3	.	.972	3	.679

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Uji_PH

Levene Statistic	df1	df2	Sig.
1.292	4	10	.337

ANOVA

Uji_PH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.145	4	.036	3.233	.060
Within Groups	.112	10	.011		
Total	.256	14			

8. Uji Sedimentasi

Tests of Normality

	Formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_Sedimentasi	Formula 1	.201	3	.	.994	3	.856
	Formula 2	.330	3	.	.866	3	.286
	Formula 3	.213	3	.	.990	3	.806
	Formula 4	.292	3	.	.923	3	.463
	Formula 5	.184	3	.	.999	3	.927

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Uji_Sedimentasi

Levene Statistic	df1	df2	Sig.
1.624	4	10	.243

ANOVA

Uji_Sedimentasi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.001	4	.000	1.588	.252
Within Groups	.001	10	.000		
Total	.001	14			

Hasil Statistik Uji Hedonik

- Parameter Warna

Tests of Between-Subjects Effects

Dependent Variable: Warna

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	22.880[a]	23	.995	9.265	.000
Intercept	1324.960	1	1324.960	12340.314	.000
Sampel	1.040	4	.260	2.422	.055
Panelis	21.840	19	1.149	10.706	.000
Error	8.160	76	.107		
Total	1356.000	100			
Corrected Total	31.040	99			

a. R Squared = .737 (Adjusted R Squared = .658)

- Parameter Aroma

Tests of Between-Subjects Effects

Dependent Variable: Aroma

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	19.470[a]	23	.847	5.624	.000
Intercept	1204.090	1	1204.090	7999.199	.000
Sampel	.160	4	.040	.266	.899
Panelis	19.310	19	1.016	6.752	.000
Error	11.440	76	.151		
Total	1235.000	100			
Corrected Total	30.910	99			

a. R Squared = .630 (Adjusted R Squared = .518)

- Parameter Rasa

Tests of Between-Subjects Effects

Dependent Variable: Rasa

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	44.330[a]	23	1.927	3.675	.000
Intercept	954.810	1	954.810	1820.511	.000
Sampel	18.140	4	4.535	8.647	.000
Panelis	26.190	19	1.378	2.628	.002
Error	39.860	76	.524		
Total	1039.000	100			
Corrected Total	84.190	99			

a. R Squared = .527 (Adjusted R Squared = .383)

Rasa

Duncan

Sampel	N	Subset			
		1	2	3	4
Formula 1	20	2.45			
Formula 3	20	2.80	2.80		
Formula 5	20		3.15	3.15	
Formula 2	20			3.40	3.40
Formula 4	20				3.65
Sig.		.131	.131	.278	.278

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .524.

a. Uses Harmonic Mean Sample Size = 20.000.

b. Alpha = 0.05.