

LAMPIRAN

Lampiran 1. Format Surat Pernyataan Bebas Plagiasi

SURAT PERNYATAAN

Yang bertanda tangan di bawah ini,

Nama : Tiwi Febriana Wulandari

N P M : 11181230

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

Pemanfaatan Ekstrak Daun Katuk *Sauropus androgynous* (L) Merr Dalam Formulasi Sediaan Mikropartikulat Dengan Metode Ekstrusi Sferonisasi

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

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

Bandung, 25 Agustus 2022



Tiwi Febriana Wulandari

Lampiran 2. Format Surat Persetujuan untuk dipublikasikan di media on line**SURAT PERNYATAAN**

Yang bertanda tangan di bawah ini,

Nama : Tiwi Febriana Wulandari

N P M : 11181230

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

Pemanfaatan Ekstrak Daun Katuk *Sauropus androgynous* (L) Merr Dalam Formulasi Sediaan Mikropartikulat Dengan Metode Ekstrusi Sferonisasi

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

Bandung, 25 Agustus 2022

A yellow rectangular official stamp from the Indonesian Ministry of Education, Culture, and Higher Education (KEMENDIKBUD). The stamp features the Garuda Pancasila emblem and the text 'KEMENDIKBUD' and 'DI BANTU'. A handwritten signature in black ink is written over the stamp. The stamp also contains the alphanumeric code '03CAJX94134400'.

Tiwi Febriana Wulandari

B. Avicel pH 102

Original

accent
LABORATORY

Quality Control

CERTIFICATE OF ANALYSIS

Product	Microcrystalline Cellulose BP	Batch no.	70S0242
Customer Name	Innovex Pharmaceuticals Pvt Ltd	Mfg. Month	May 2020
Grade	ACCCEL 102	Exp Month	Apr 2023
MOA	BP 2018	Batch Qty	3000Kgs.
Sr. No	Test	Specification	Result
1	Description	White or almost white, - actually resolvable in water, dilute acid and most of organic solvents. Slightly soluble in dilute NaOH solution	Complies
2	Identification Al/Zinc Chloride test)	Violet- Blue colour obtain	Complies
3	Identification B (Degree of Polymerization)	NMT 350	Complies
4	Solubility (cropecterazine solution)	dissolves completely	Complies
5	pH	2.0-7.5	5.86
6	Conductivity	NMT 75 µS/cm	Complies
7	Ether- Soluble Substance	NMT 0.05% (5.0 mg)	0.0175%
8	Water- Soluble Substance	NMT 0.25% (12.5mg)	0.125%
9	Loss on Drying	NMT 7.0%	2.09%
10	Residue on Ignition : Sulphated Ash	NMT 0.1 %	0.0812 %
11	Heavy Metals	NMT 10 PPM	Complies
12	Particle Size Distribution		
	D ₁₀	< 45µ	17µ
	D ₅₀	70 – 100µ	73µ
	D ₉₀	> 140 µ	175µ
MICROBIAL LIMITS			
13	Total Viable Aerobic Count	NMT 1000cfu/g	30
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%	61.5725%

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

Abbreviation : NMT (Not More Than)

Storage recommendation: Preserve in tight containers.

Date of Issue: 15/05/2020
 Issued By: Mr. J. Prasad
 Checked By: Mr. J. Prasad
 Approved By: Mr. J. Prasad
 Date of Receipt: 15/05/2020
 Received By: Mr. J. Prasad
 Checked By: Mr. J. Prasad
 Approved By: Mr. J. Prasad
 Date of Release: 15/05/2020
 Released By: Mr. J. Prasad
 Checked By: Mr. J. Prasad
 Approved By: Mr. J. Prasad

Page: 1 of 1
 Date: 15/05/2020
 Time: 15:00
 Location: Lab
 Operator: J. Prasad
 Supervisor: J. Prasad
 Analyst: J. Prasad
 Reviewer: J. Prasad
 Approver: J. Prasad
 Date: 15/05/2020
 Time: 15:00
 Location: Lab
 Operator: J. Prasad
 Supervisor: J. Prasad
 Analyst: J. Prasad
 Reviewer: J. Prasad
 Approver: J. Prasad

C. Sukralos

kanbo 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, GB25531 and GB4789	Result
Appearance	White or almost white powder	Complies
Ident IR	The IR absorption spectrum conforms 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 75µm mesh
Storage condition: Store in well closed container, dry and cool place
Shelf Life: 2 years while stored in original packing under above stated conditions
Conclusion: The product complies with FCC12, EP10, USP43, E955, GB25531 and GB4789 standards.
Approved: Xu Songbo Inspector: Liu Shilong

D. PVP (K30)

ANHUI SUNHERE PHARMACEUTICAL EXCIPIENTS CO., LTD.
ADD: Economic and Technological Developing Zone, Huainan, Anhui, China

CERTIFICATE OF ANALYSIS

Product: Povidone K30

Batch No.	211203	REP DATE	DEC.09,2021
Specifications	25kg/drum	MFG DATE	DEC.03,2021
Quantity	3000kg	EXP DATE	DEC.02,2023
Tests	Standard USP43	Examinations	
Identification A-E	Positive	Complies	
Appearance	White or yellowish-white powder	White powder	
Solubility	Freely soluble in water, ethanol 96% methanol, very slightly soluble in acetone.	Complies	
Appearance of solution	Clear and NMT B _u , B _v , or B _s	Complies	
pH (5% in water)	3.0-5.0	3.8	
K-value	27-32	28.3	
Aldehydes	≤500ppm	<500ppm	
Peroxides(H ₂ O ₂)	≤400ppm	<400ppm	
Formic acid	≤0.5%	0.35%	
Hydrazine	≤1ppm	<1ppm	
Vinylpyrrolidone	≤0.001%	<10ppm	
2-Pyrrolidone	≤3.0%	1.80%	
Heavy metals (CP2010)	≤10ppm	<10ppm	
Lead	≤10ppm	<10ppm	
Water	≤5.0%	3.0%	
Residue on Ignition	≤0.1%	0.08%	
Nitrogen content	11.5-12.8%	12.1%	
Total Aerobic Plate Count	≤100cfu/g	10cfu/g	
Mold and Yeast Count	≤100cfu/g	10cfu/g	
E.coli	Not detected	Complies	
Staphylococcus Aureus	Not detected	Complies	
Pseudomonas aeruginosa	Not detected	Complies	
Salmonella Spp	Not detected	Complies	

Lampiran 4. Kode Etik

A. Persetujuan etik



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET DAN TEKNOLOGI
UNIVERSITAS PADJADJARAN
KOMISI ETIK PENELITIAN
RESEARCH ETHICS COMMITTEE
Jl. Prof. Eendren No. 38 Bandung 40131
Telp & Fax 022-2533887 email: ke@unpad.ac.id, website: <http://unpad.ac.id>

No. Reg.: 220202023

Persetujuan Etik
ETHICAL APPROVAL

Nomor: 403/UNG.KEPIEC/2022

Komis Etik Penelitian Universitas Padjadjaran Bandung, dalam upaya melindungi hak asasi dan kesejahteraan subjek penelitian serta menjamin bahwa penelitian yang menggunakan formulir survei/registrasi/surveilans/epidemiologi/humaniora/Sosial Budaya/Bahan Biologi Tersimpan/Sel Punca dan non klinis lainnya berjalan dengan memperhatikan implikasi etik, hukum, sosial dan non klinis lainnya yang berlaku, telah mengkaji dengan teliti proposal penelitian berikut:

The Research Ethics Committee Universitas Padjadjaran Bandung, in order to protect the rights and welfare of the research subject, and to guaranty that the research using survey questionnaire/registrty/surveillance/epidemiology/humaniora/social-cultural/archived biological materials/item cell/other non clinical materials, will carried out according to ethical, legal, social implications and other applicable regulations, has been thoroughly reviewed the proposal entitled:

"FORMULASI MINUMAN PELET INSTAN EKSTRAK KUNYIT (CURCUMA LONGA L.) DENGAN METODE EKSTRAKSI SFERONISASI"

Nama Peneliti Utama
Principal Researcher : Lina Maryana

Pembimbing/Peneliti Lain
Supervisor/Other Researcher : apt. Drs. Rahmat Santoso, M.Si., MH.Kes
apt. Dadih Supriadi, M.Si

Nama Institusi
Institution : Program Sarjana
Fakultas Farmasi Universitas Bhakti Kencana Bandung

proposal tersebut dapat disetujui pelaksanaannya.
herely declare that the proposal is approved.



Ditetapkan di : Bandung
Issued at
Tanggal : 25-04-2022
Date
Ketua,
Chairman,

Prof ASik, dr. M.Kes., PhD
NIP. 19811010 200801 1 019

Keterangan/notes:
Persetujuan etik ini berlaku selama satu tahun sejak tanggal ditetapkan.
This ethical clearance is effective for one year from the due date.
Pada akhir penelitian, laporan pelaksanaan penelitian harus diserahkan ke Komisi Etik Penelitian.
In the end of the research, progress and final summary report should be submitted to the Research Ethics Committee.
Jika ada perubahan atau penyimpangan prosedur dari atau perubahan penelitian, harus mengajukan kembali permohonan kajian etik penelitian.
If there are any protocol modification or deviation and/or extension of the study, the Principal Investigator is required to resubmit the protocol for approval.
Jika ada kejadian serius yang tidak diinginkan (SAD) harus segera dilaporkan ke Komisi Etik Penelitian.
If there are Serious Adverse Events (SAE) should be immediately reported to the Research Ethics Committee.

B. Persetujuan Setelah Penjelasan



RISET DAN TEKNOLOGI
UNIVERSITAS PADJADJARAN
KOMISI ETIK PENELITIAN
RESEARCH ETHICS COMMITTEE
Jl. Prof. Eendren No. 38 Bandung 40131
Telp & Fax 022-2533887 website: unpad.ac.id, email: ke@unpad.ac.id

PSP untuk orang dewasa

Persetujuan Setelah Penjelasan (PSP)
UNTUK RUT SERTA DALAM PENELITIAN
(INFORMED CONSENT)

Saya telah membaca atau memperoleh penjelasan, sepenuhnya menyadari, mengerti, dan memahami tentang tujuan, manfaat, dan risiko yang mungkin timbul dalam penelitian, serta telah diberi kesempatan untuk bertanya dan telah dijawab dengan memuaskan, juga sewaktu-waktu dapat mengundurkan diri dari keikut sertaannya, maka saya setuju/tidak setuju* ikut dalam penelitian ini, yang berjudul: **Formulasi Minuman Pelet Instan Ekstrak Kunyit (Curcuma longa L.) dengan Metode Ekstraksi Sferonisasi**

Saya dengan sukarela memilih untuk ikut serta dalam penelitian ini tanpa tekanan/paksaan siapapun. Saya akan diberikan salinan lembar penjelasan dan formulir persetujuan yang telah saya tandatangi untuk arsip saya.
Saya setuju.
Ya/Tidak?

	Tgl.:	Tanda tangan (bila tidak bisa dapat digunakan cap jempol)
Nama Peserta: Ela Elia Wulandari	19 - 06 - 2022	
Usia: 21 th		
Alamat: Jln. Ciburuy 12		
Nama Peneliti: Elia Elia Wulandari		
Nama Saksi: Muhammad Dharman		

*) coret yang tidak perlu

Lampiran 5. Alat dan Bahan

Alat



Timbangan analitik



Pan coater



Ekstruder



Dryer



Wadah sferoniser



Kompresor



Plat sferoniser



Penyalutan



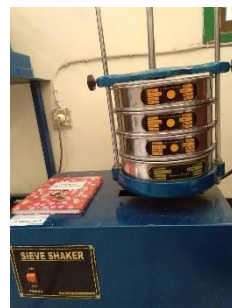
Overhed stirrer



Sudut istirahat



Oven



Shieve shaker



Moister balance



Magnetic stirrer



Flow tester



Volume sedimentasi

Bahan



Ekstrak katuk



Avicel pH 102



PVP K30



Aquadest



Sukralos



Opadry (HPMC)

Lampiran 6. Penapisan fitokimia ekstrak katuk

Skrinning Fitokimia Ekstrak Katuk		
Pengujian	Hasil	Keterangan
A. Alkaloid		(+) Alkaloid perekasi dragendroff menghasilkan endapan berwarna coklat jingga
B. Flavonoid		(+) Flavonoid ditandai dengan terbentuknya warna kuning atau merah
C. Tanin		(+) Tanin ditandai dengan perubahan warna hijau kehitaman yang menandakan tanin terkondensasi
D. Saponin		(+) Saponin ditandai dengan ditandai dengan adanya buih

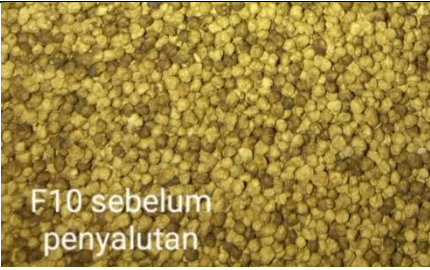
Lampiran 7. Optimasi Pengikat (PVP K30)

Formula	Esktrudat	Sferoid
F1 (1%)		
F2 (3%)		
F3 (5%)		
F4 (7%)		
F5 (9%)		

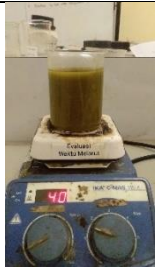
Lampiran 8. Pelet ekstrak katuk

Formula	Esktrudat	Sferoid
F6	 Ekstruder F6	
F7	 Ekstruder F7	
F8		
F9		
F10	 udat F10	

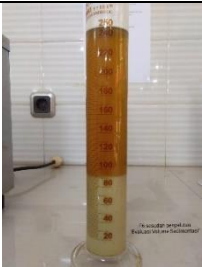
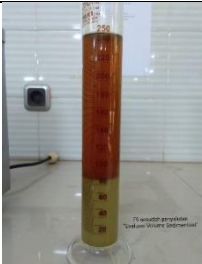
Lampiran 9. Pelet penyalutan lapis tipis

Formula	Sebelum penyalutan	Sesudah penyalutan
F6 P	 F6 sebelum penyalutan	 F6 sesudah penyalutan
F7 P	 F7 sebelum penyalutan	 F7 sesudah penyalutan
F8 P	 F8 sebelum penyalutan	 F8 sesudah penyalutan
F9 P	 F9 sebelum penyalutan	 F9 sesudah penyalutan
F10 P	 F10 sebelum penyalutan	 F10 sesudah penyalutan

Lampiran 10. Evaluasi pelet

Evaluasi	Gambar
Susut pengeringan	
Laju alir	
Sudur istirahat	
Distribusi ukuran partikel	
Waktu melarut	

Lampiran 11. Evaluasi volume sedimentasi

Volume sedimentasi		
Formula	Jam ke – 0	Jam ke – 24
F6		
F7		
F8		
F9		
F10		

Lampiran 12. Pelet yang sudah dilarutkan

Formula	Gambar
F6 P	
F7 P	
F8 P	
F9 P	
F10 P	

Lampiran 13. Data evaluasi Optimasi Pengikat**A. Organoleptik ekstrudat**

Pemeriksaan	F1	F2	F3	F4	F5
Organoleptik	Bentuk	Silinder	Silinder	Silinder	Silinder
	Warna	Putih	Putih	Putih	Putih
	Bau	Bau khas	Bau khas	Bau khas	Bau khas

B. Organoleptik sferoid

Pemeriksaan	F1	F2	F3	F4	F5
Organoleptik	Bentuk	Sferis	Sferis	Sferis	Sferis
	Warna	Putih	Putih	Putih	Putih
	Bau	Bau khas	Bau khas	Bau khas	Bau khas

C. Susut pengeringan

Pemeriksaan		F1	F2	F3	F4	F5
Susut pengeringan	1	4,05	400	2,70	2,11	3,30
	2	3,99	3,25	2,55	3,56	2,16
	3	3,36	3,82	2,82	3,58	3,58
	Rata – rata	3,80	3,69	2,69	3,08	3,01
	SD	038	0,39	013	0,84	0,75

D. Laju alir

Pemeriksaan		F1	F2	F3	F4	F5
Laju alir	1	8,46	7,63	8,62	6,29	7,89
	2	8,31	7,81	8,70	6,38	7,62
	3	8,29	7,91	8,85	6,43	7,74
	Rata – rata	8,35	7,79	8,72	6,36	7,75
	SD	0,09	0,14	0,12	0,07	0,14

E. Sudut istirahat

Pemeriksaan		F1	F2	F3	F4	F5
Laju alir	1	34,22	30,96	35,75	34,22	35,75
	2	35,75	34,22	37,24	30,96	34,22
	3	32,62	33,75	34,22	33,24	34,22
	Rata – rata	34,20	32,98	35,74	32,81	34,73
	SD	1,57	1,76	1,51	1,67	0,89

F. Distribusi ukuran partikel

Pemeriksaan		F1	F2	F3	F4	F5
Distribusi ukuran partikel	1	-0.04	0.17	0.01	-0.06	-0.03
	2	-0.07	0.11	0.03	-0.03	-0.04
	3	-0.02	0.08	0.06	-0.08	-0.06
	Rata – rata	-0.04	0.12	0.03	-0.06	-0.04
	SD	0.03	0.04	0.03	0.03	0.02

Lampiran 14. Evaluasi Pelet**A. Organoleptik ekstrudat**

Pemeriksaan	F6	F7	F8	F9	F10
Organoleptik	Bentuk	Silinder	Silinder	Silinder	Silinder
	Warna	Hijau	Hijau	Hijau	Hijau
	Bau	Bau khas	Bau khas	Bau khas	Bau khas

B. Organoleptik sferoid

Pemeriksaan	F6	F7	F8	F9	F10
Organoleptik	Bentuk	Sferis	Sferis	Sferis	Sferis
	Warna	Hijau	Hijau	Hijau	Hijau
	Bau	Bau khas	Bau khas	Bau khas	Bau khas

C. Susut pengeringan

Pemeriksaan	F6	F7	F8	F9	F10
Susut pengeringan	1	1.64	1.09	1.95	1.30
	2	1.76	1.64	1.60	1.55
	3	1.04	2.20	1.55	1.35
	Rata – rata	1.48	1.64	1.70	1.65
	SD	0.39	0.56	0.22	0.28

D. Laju alir

Pemeriksaan	F6	F7	F8	F9	F10
Laju alir	1	8.71	8.77	8.82	8.64
	2	8.74	8.83	8.69	8.65
	3	8.78	8.81	8.77	8.68
	Rata – rata	8.74	8.80	8.76	8.66
	SD	0.04	0.03	0.07	0.02

E. Sudut istirahat

Pemeriksaan		F6	F7	F8	F9	F10
Laju alir	1	28.72	29.55	31.51	29.07	28.41
	2	30.54	29.07	31.84	29.55	28.77
	3	29.90	29.07	30.07	28.24	28.90
	Rata – rata	29.72	29.23	31.14	28.95	28.69
	SD	0.92	0.28	0.94	0.67	0.25

F. Distribusi ukuran partikel

Pemeriksaan		F6	F7	F8	F9	F10
Distribusi ukuran partikel	1	0.10	0.04	-0.09	0.05	0.17
	2	0.00	0.01	-0.02	-0.08	0.15
	3	0.10	0.04	-0.02	-0.08	0.15
	Rata – rata	0.07	0.03	-0.05	-0.04	0.16
	SD	0.06	0.02	0.04	0.07	0.01

G. Waktu melarut

Pemeriksaan		F6	F7	F8	F9	F10
Waktu melarut	1	3,85	4,12	4,55	3,98	4,78
	2	4,03	3,95	4,58	4,12	4,86
	3	3,79	4,05	4,63	4,30	4,89
	Rata – rata	3,89	4,04	4,59	4,14	4,84
	SD	0,12	0,09	0,04	0,16	0,06

Lampiran 15. Evaluasi Pelet Salut Lapis Tipis**A. Organoleptik**

Pemeriksaan		F6 P	F7 P	F8 P	F9 P	F10 P
Organoleptik	Bentuk	Sferis	Sferis	Sferis	Sferis	Sferis
	Warna	Hijau pudar	Hijau pudar	Hijau pudar	Hijau pudar	Hijau pudar
	Bau	Bau khas	Bau khas	Bau khas	Bau khas	Bau khas

B. Susut pengeringan

Pemeriksaan		F6 P	F7 P	F8 P	F9 P	F10 P
Susut pengeringan	1	1.25	1.80	2.36	1.36	1.45
	2	1.09	2.20	2.88	1.48	2.45
	3	1.24	2.05	1.04	2.93	2.24
	Rata – rata	1.20	2.02	2.09	1.92	2.04
	SD	0.09	0.20	0.95	0.87	0.53

C. Laju alir

Pemeriksaan		F6 P	F7 P	F8 P	F9 P	F10 P
Laju alir	1	9.24	10.62	10.80	11.31	12.07
	2	9.29	10.33	10.85	11.81	11.82
	3	9.55	10.46	11.06	11.28	12.14
	Rata – rata	9.36	10.47	10.90	11.47	12.01
	SD	0.17	0.15	0.14	0.30	0.17

D. Sudut istirahat

Pemeriksaan		F6 P	F7 P	F8 P	F9 P	F10 P
Sudut istirahat	1	27.56	29.81	25.83	30.33	26.52
	2	27.97	29.42	27.20	29.16	27.29
	3	30.46	29.25	25.92	28.32	26.70
	Rata – rata	28.66	29.49	26.32	29.27	26.84
	SD	1.57	0.29	0.77	1.01	0.40

E. Distribusi ukuran partikel

Pemeriksaan		F6 P	F7 P	F8 P	F9 P	F10 P
Distribusi ukuran partikel	1	0,15	0,25	0,12	-0,07	0,09
	2	0,14	0,16	0,14	0,00	0,14
	3	0,15	0,13	0,14	-0,01	0,13
	Rata – rata	0,15	0,18	0,14	-0,03	0,12
	SD	0,01	0,06	0,01	0,04	0,03

F. Kenaikan bobot

Pemeriksaan	F6 P	F7 P	F8 P	F9 P	F10 P
Kenaikan bobot	0,45	0,41	3,37	1,68	0,05

G. Waktu melarut

Pemeriksaan		F6 P	F7 P	F8 P	F9 P	F10 P
Waktu melarut	1	4.56	4.89	5.03	5.05	4.97
	2	4.45	5.01	4.97	4.94	5.04
	3	4.61	4.99	4.95	4.89	5.01
	Rata – rata	4.54	4.96	4.98	4.96	5.01
	SD	0.08	0.06	0.04	0.08	0.04

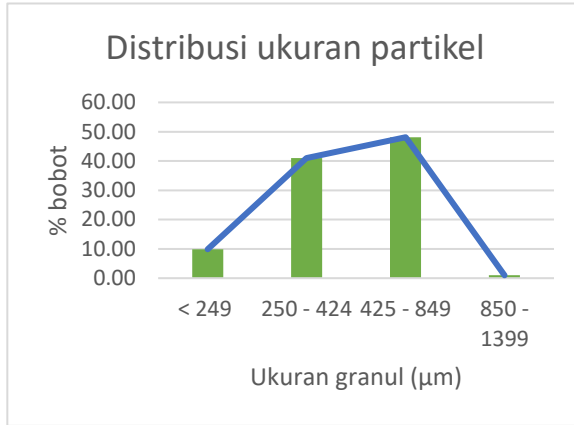
H. Volume sedimentasi

Pemeriksaan		F6 P	F7 P	F8 P	F9 P	F10 P
Waktu melarut	1	0,64	0,68	0,64	0,66	0,62
	2	0,60	0,74	0,50	0,75	0,60
	3	0,65	0,64	0,67	0,62	0,70
	Rata – rata	0,63	0,69	0,60	0,68	0,64
	SD	0,03	0,05	0,09	0,07	0,05

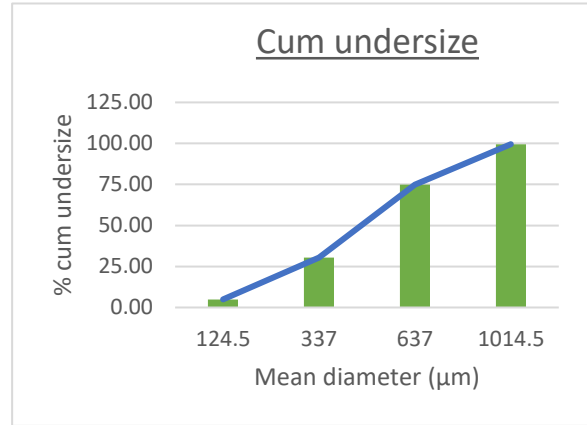
Lampiran 16. Grafik Histogram Evaluasi Distribusi Ukuran Partikel

A. Optimasi Pengikat (PVP K30)

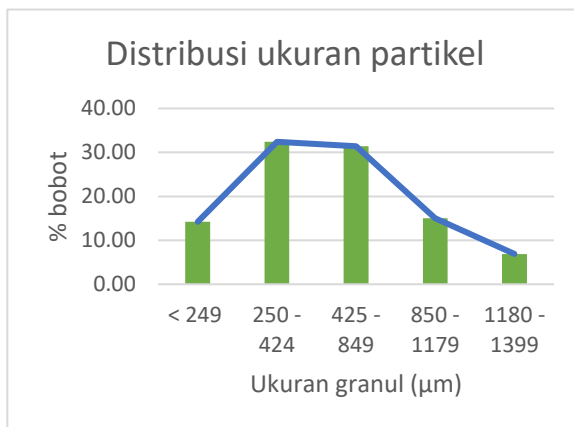
- Formula 1 (1%)



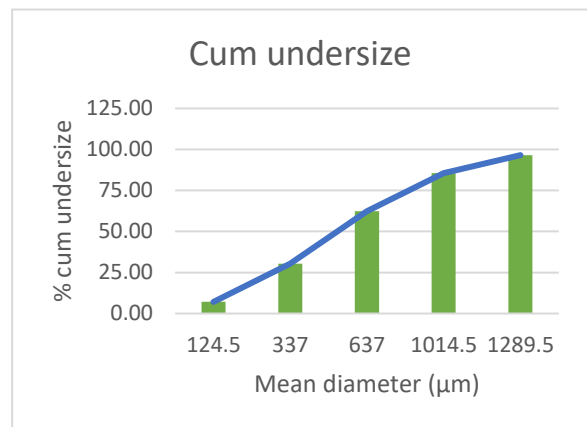
- Formula 1 (1%)



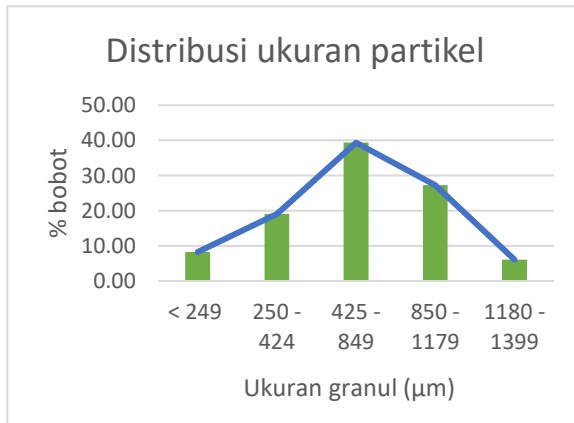
- Formula 2 (3%)



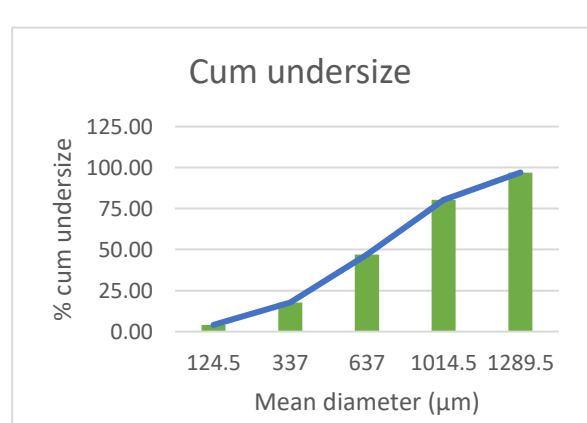
- Formula 2 (3%)



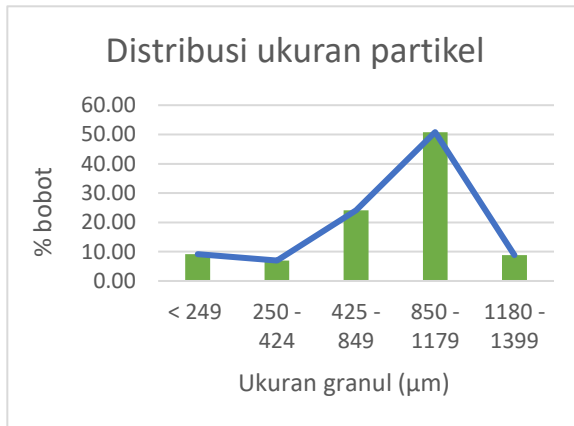
- Formula 3 (5%)



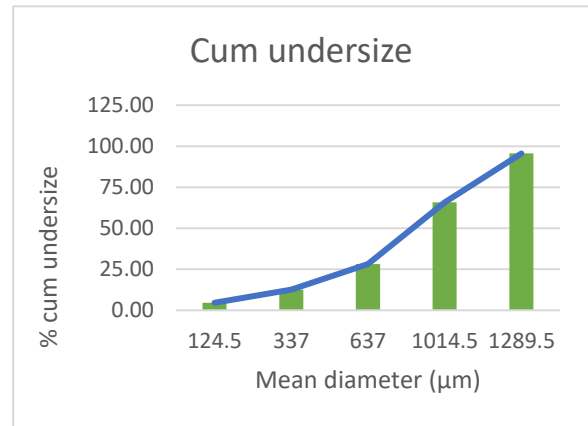
- Formula 3 (5%)



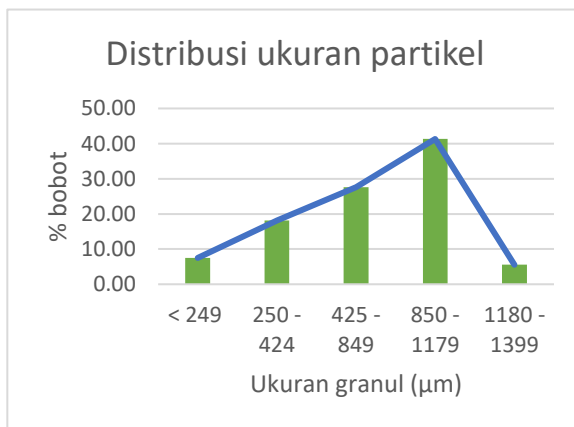
- Formula 4 (7%)



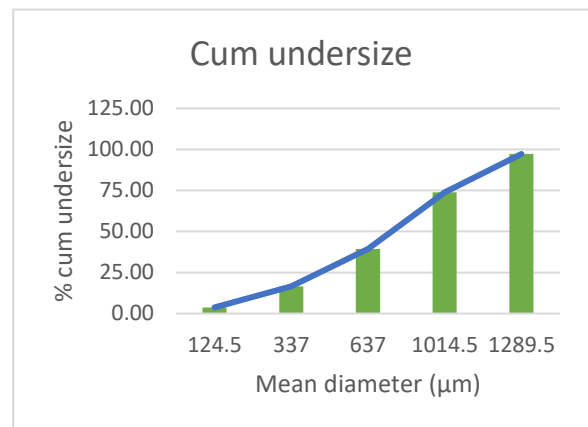
- Formula 4 (7%)



- Formula 5 (9%)

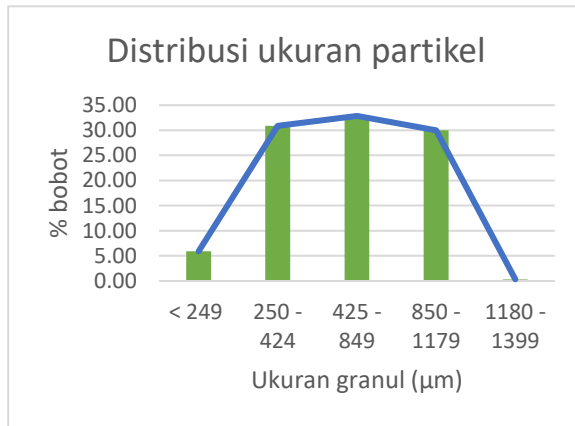


- Formula 5 (9%)

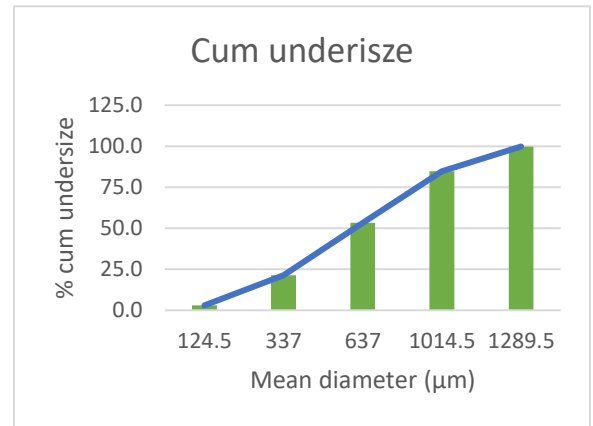


B. Pelet Ekstrak Katuk

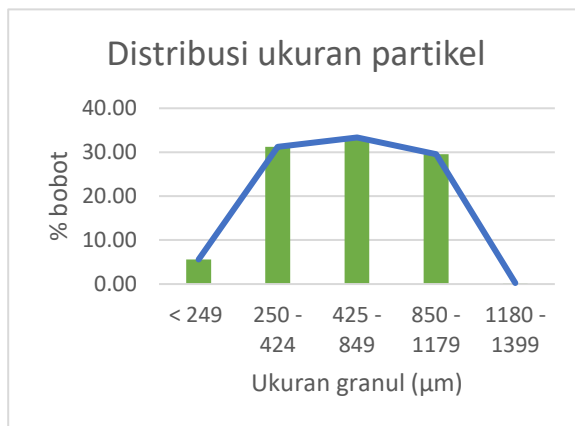
- Formula 6A (5%)



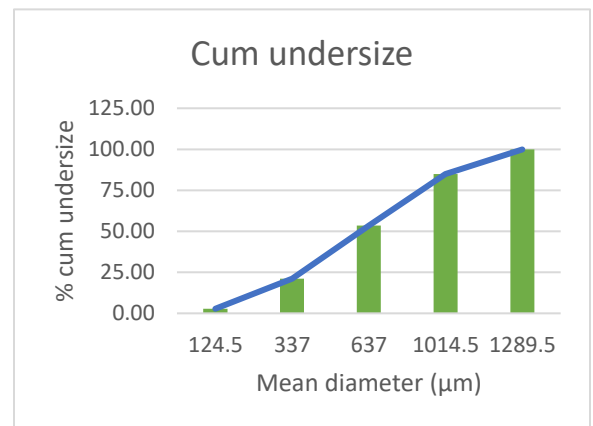
- Formula 6A (5%)



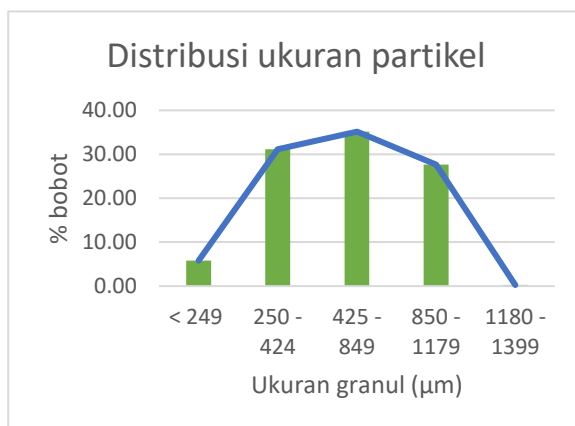
- Formula 6B (5%)



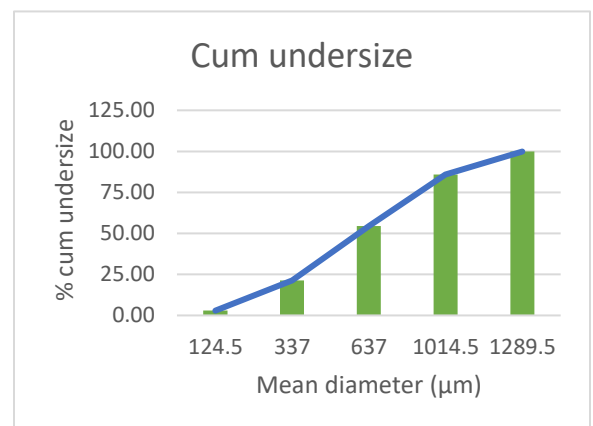
- Formula 6B (5%)



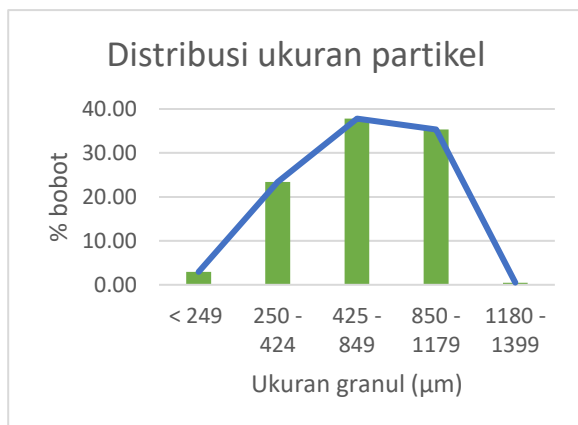
- Formula 6C (5%)



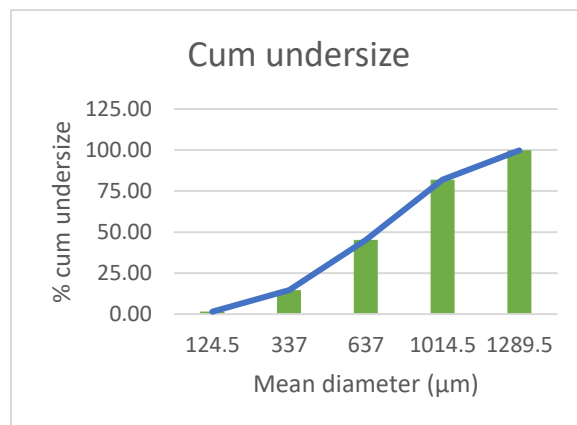
- Formula 6C (5%)



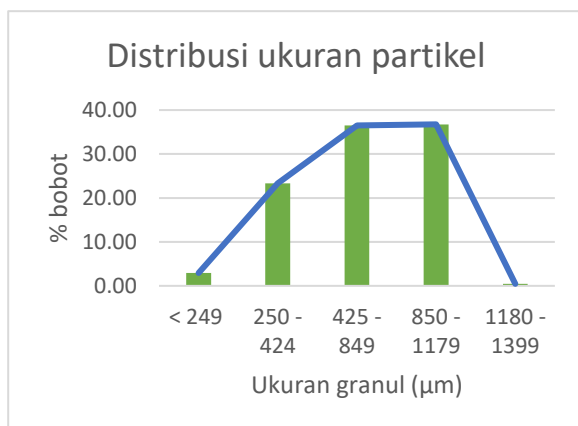
- Formula 7A (7,5%)



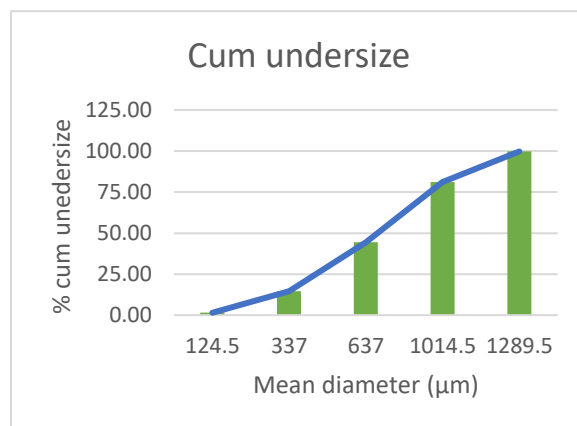
- Formula 7A (7,5%)



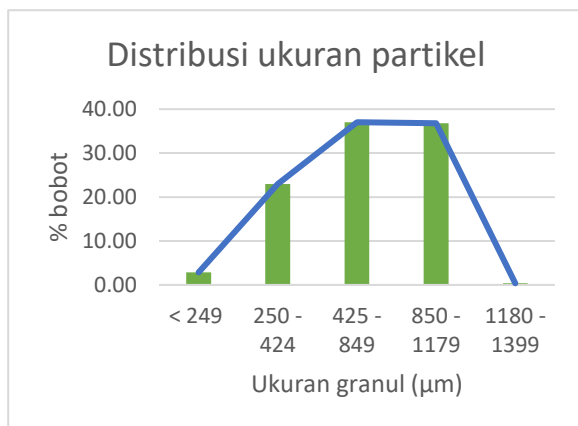
- Formula 7B (7,5%)



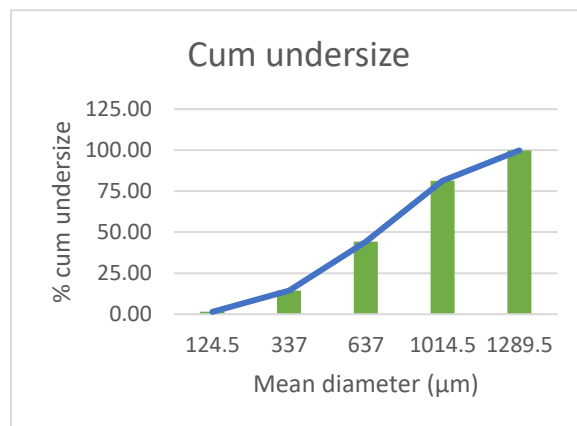
- Formula 7B (7,5%)



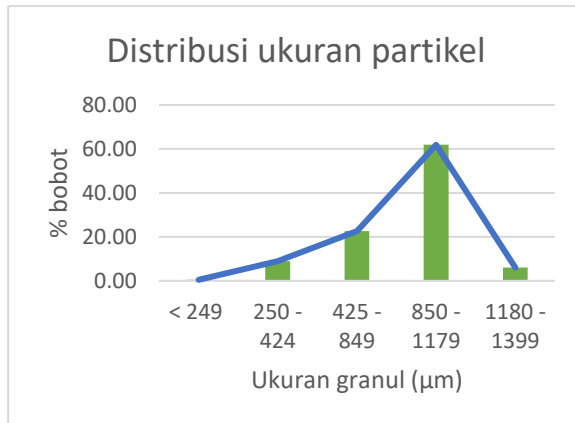
- Formula 7C (7,5%)



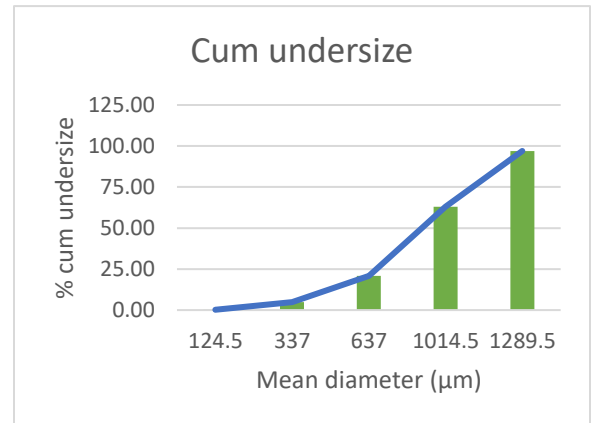
- Formula 7C (7,5%)



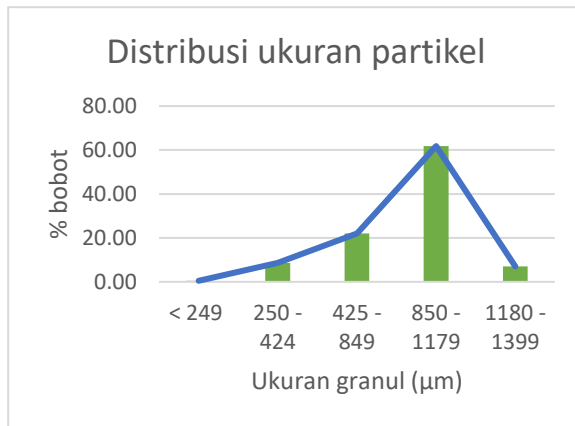
- Formula 8A (10%)



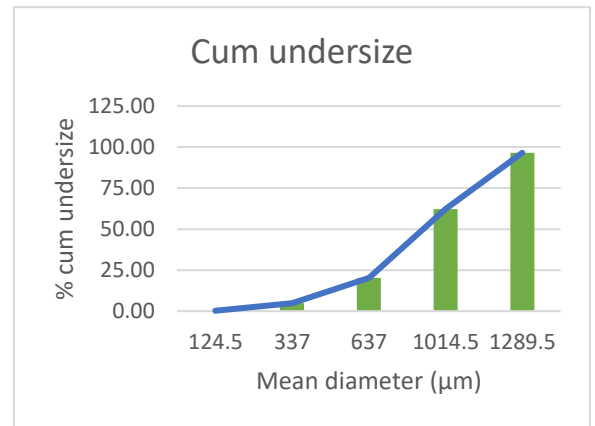
- Formula 8A (10%)



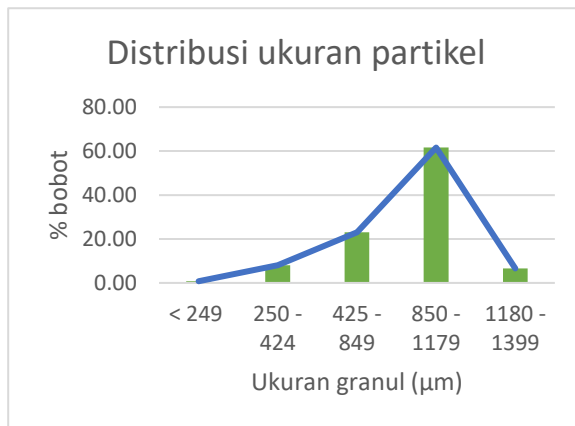
- Formula 8B (10%)



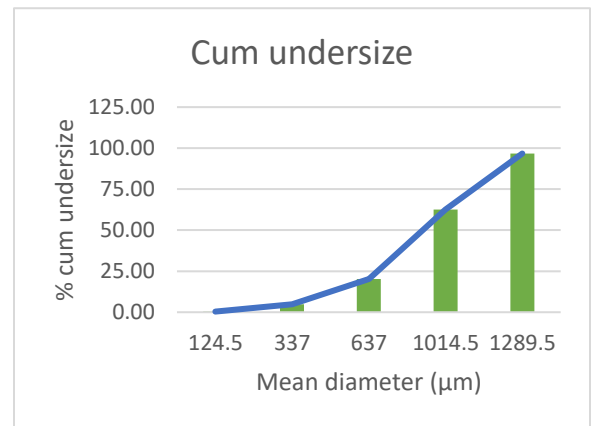
- Formula 8B (10%)



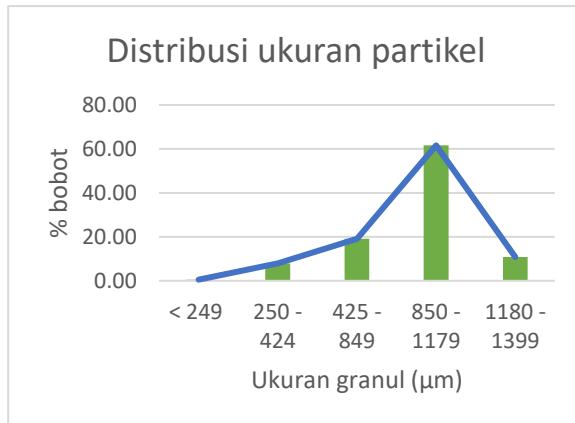
- Formula 8C (10%)



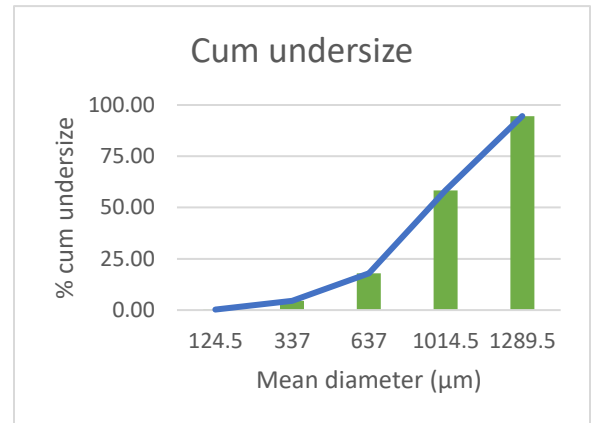
- Formula 8C (10%)



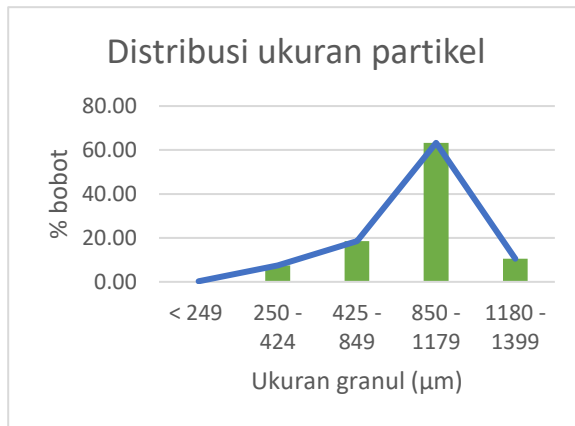
- Formula 9A (12,5%)



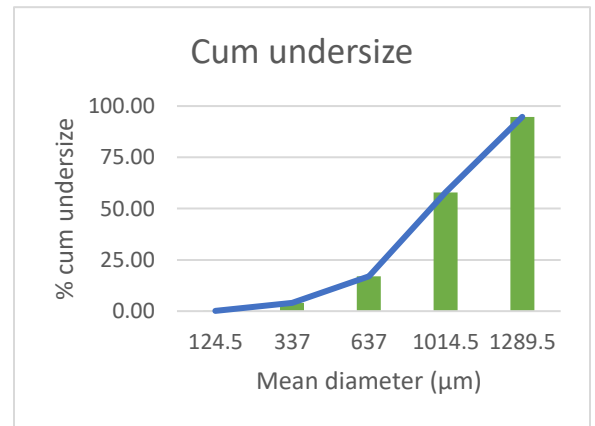
- Formula 9A (12,5%)



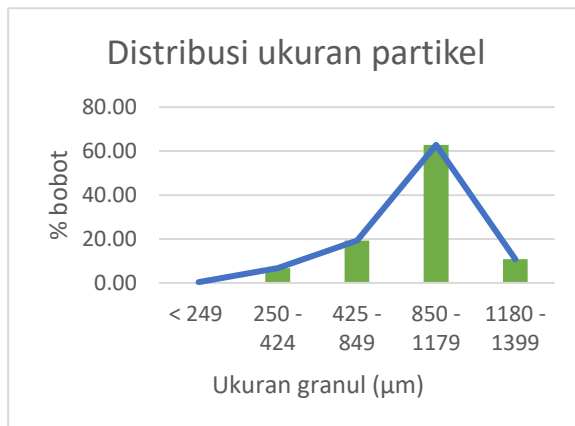
- Formula 9B (12,5%)



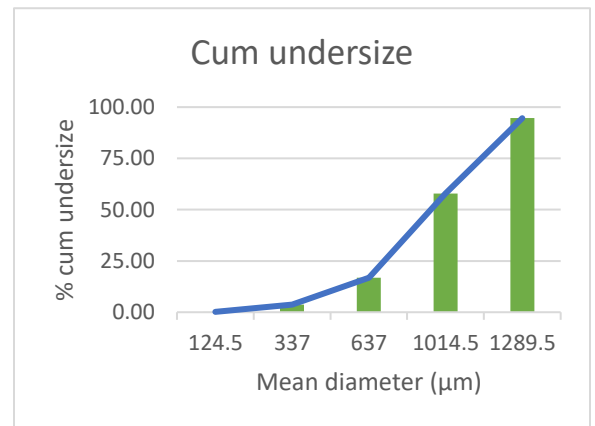
- Formula 9B (12,5%)



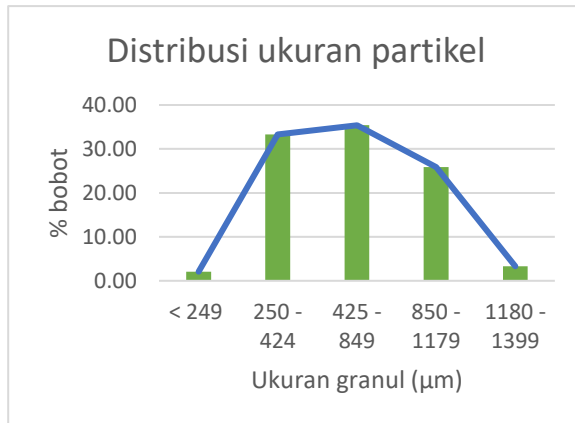
- Formula 9C (12,5%)



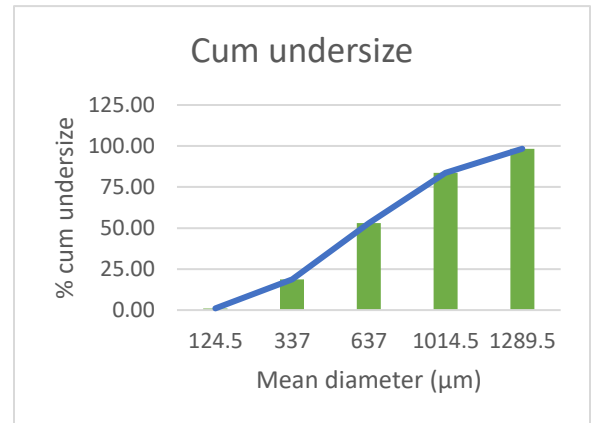
- Formula 9C (12,5%)



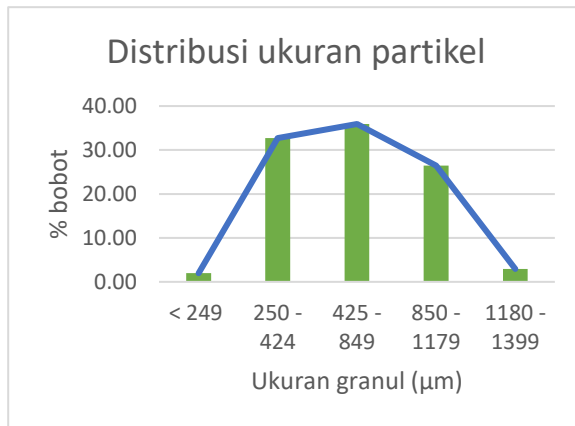
- Formula 10A (15%)



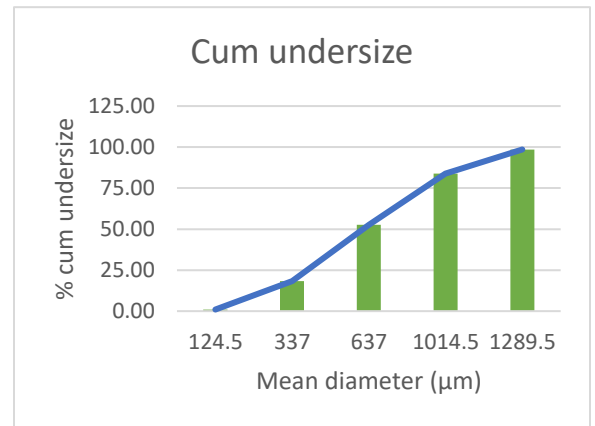
- Formula 10A (15%)



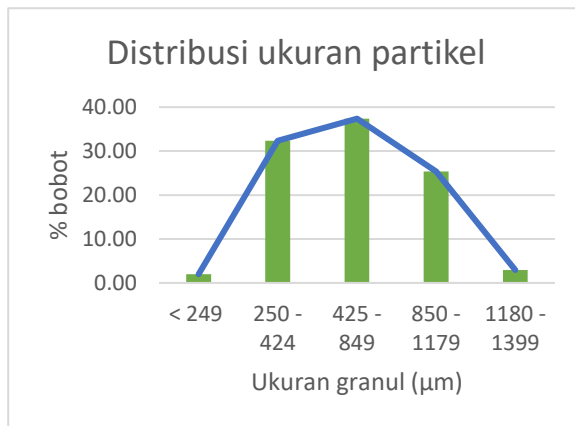
- Formula 10B (15%)



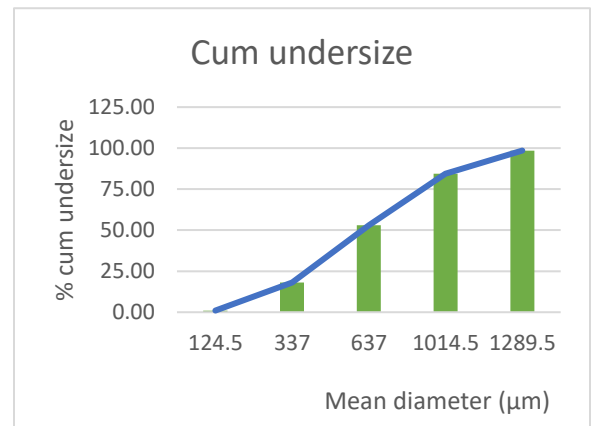
- Formula 10B (15%)



- Formula 10C (15%)

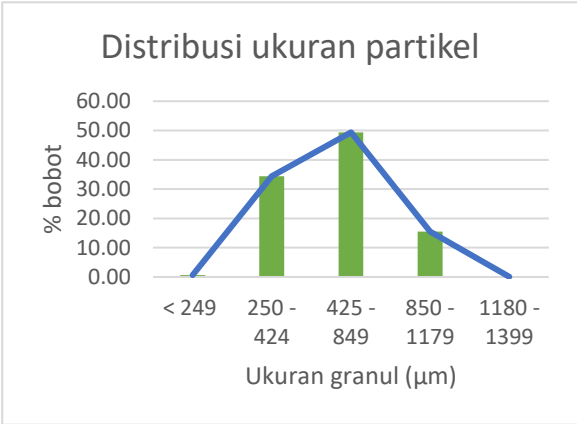


- Formula 10C (15%)

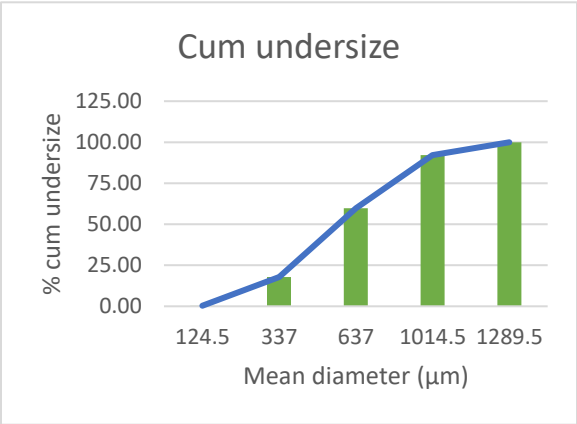


C. Pelet Salut Lapis Tipis

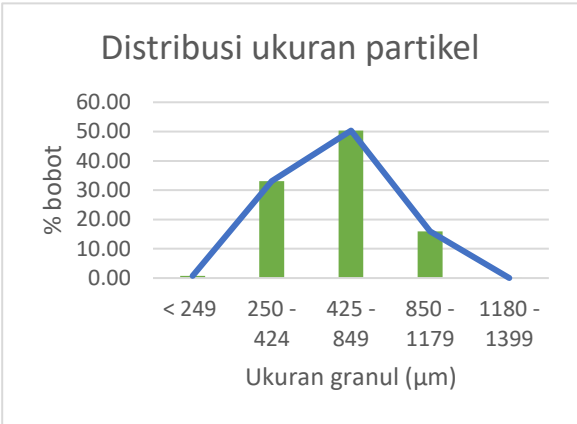
- Formula 6A Salut



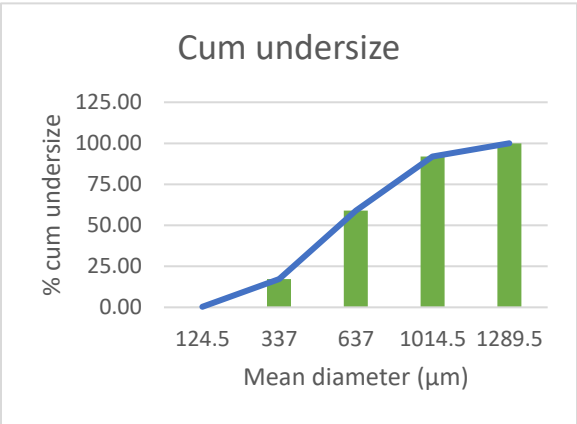
- Formula 6A Salut



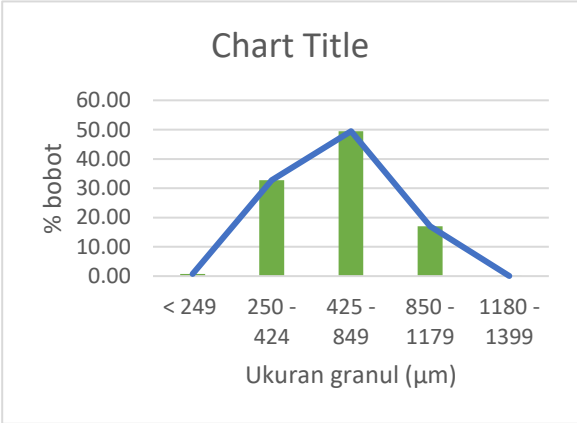
- Formula 6B Salut



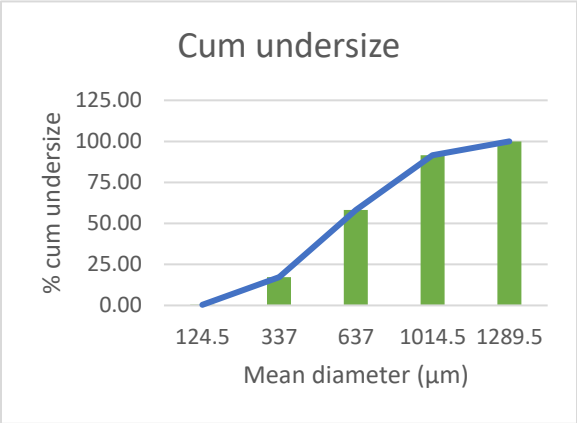
- Formula 6B Salut



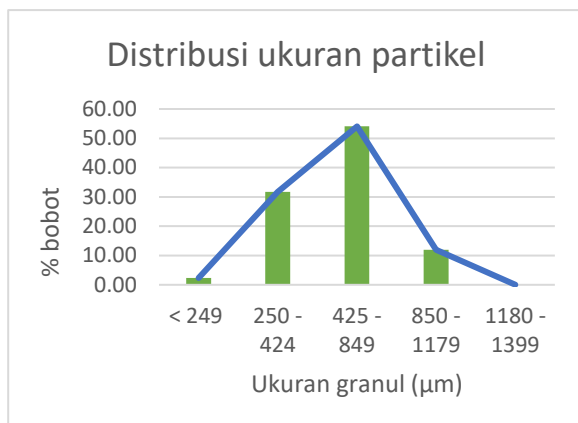
- Formula 6C Salut



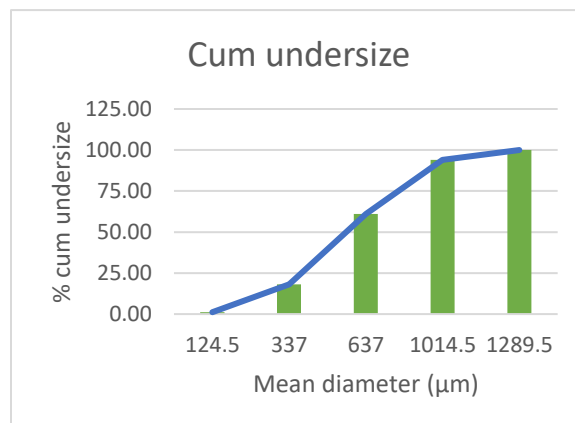
- Formula 6C Salut



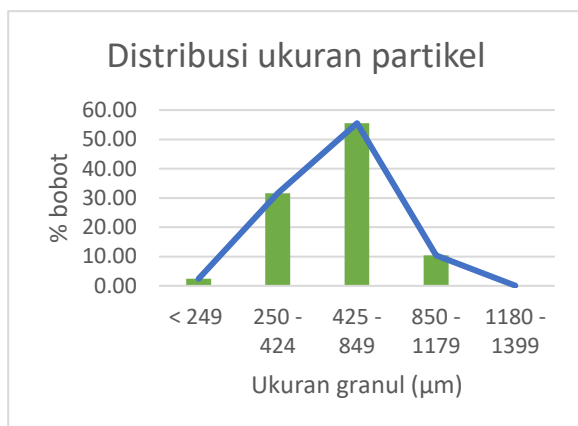
- Formula 7A Salut



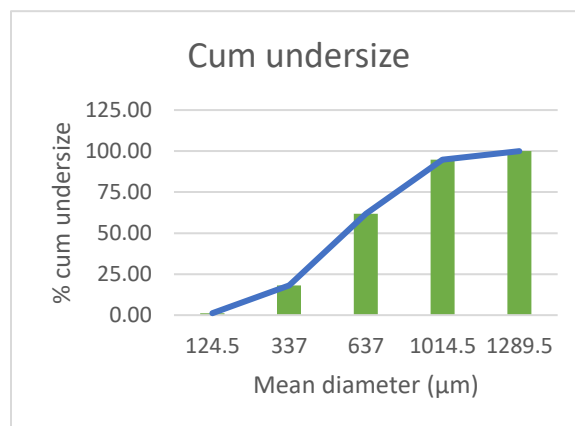
- Formula 7A Salut



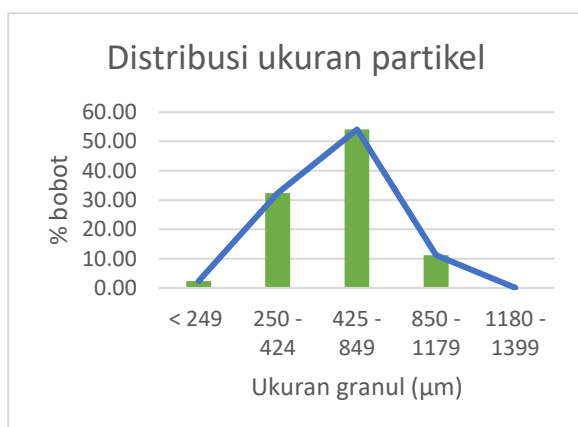
- Formula 7B Salut



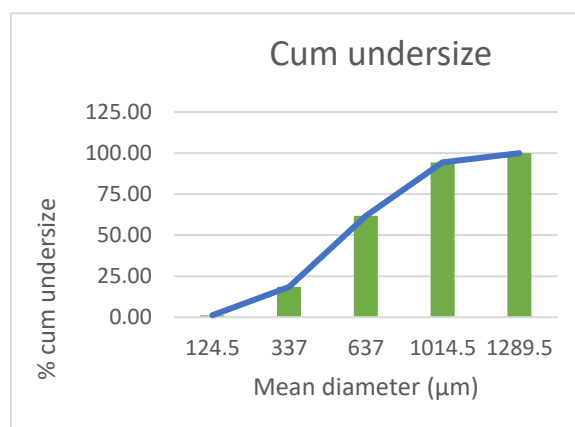
- Formula 7B Salut



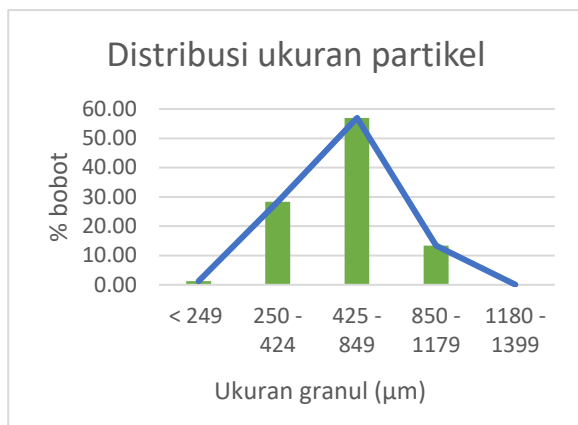
- Formula 7C Salut



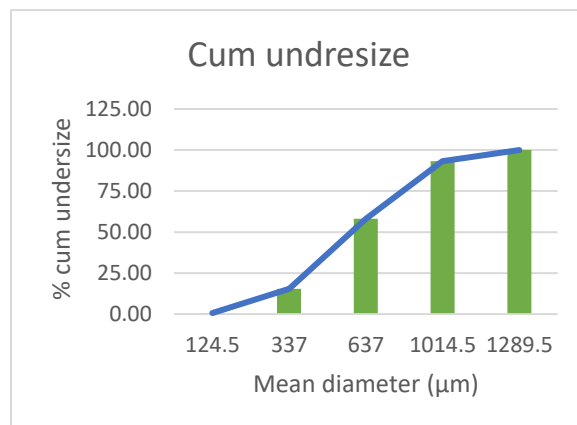
- Formula 7C Salut



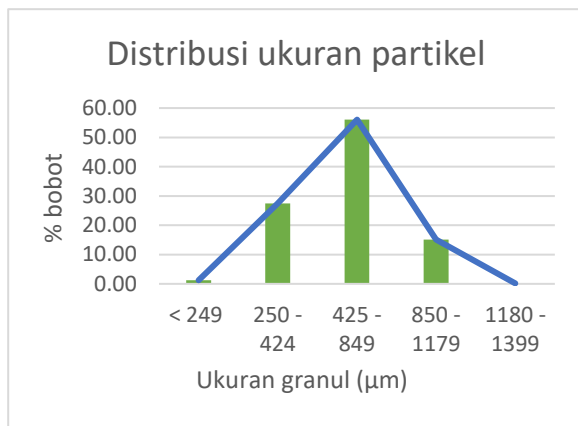
- Formula 8A Salut



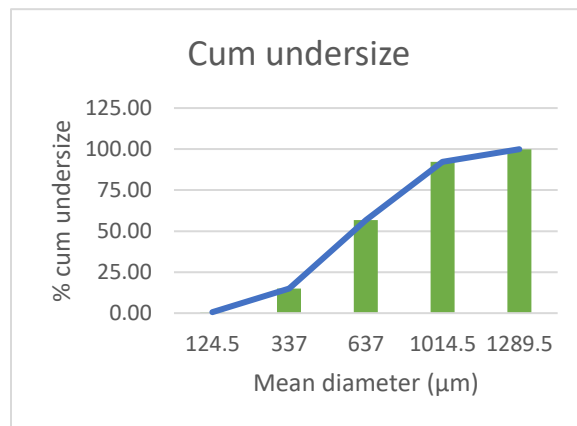
- Formula 8A Salut



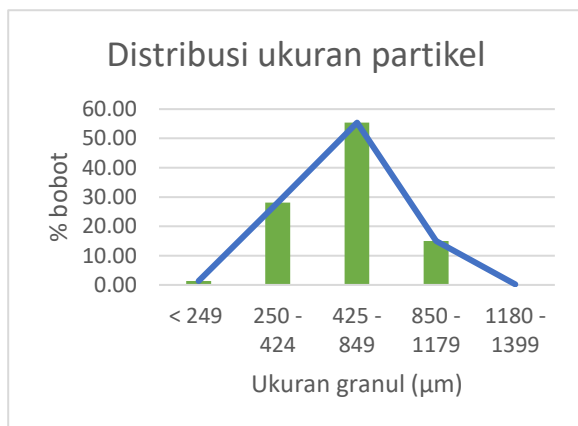
- Formula 8B Salut



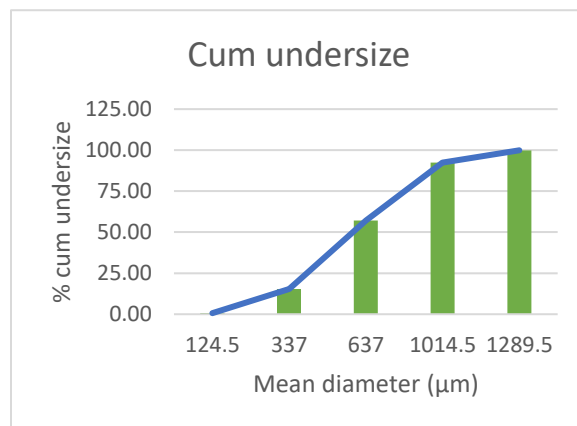
- Formula 8B Salut



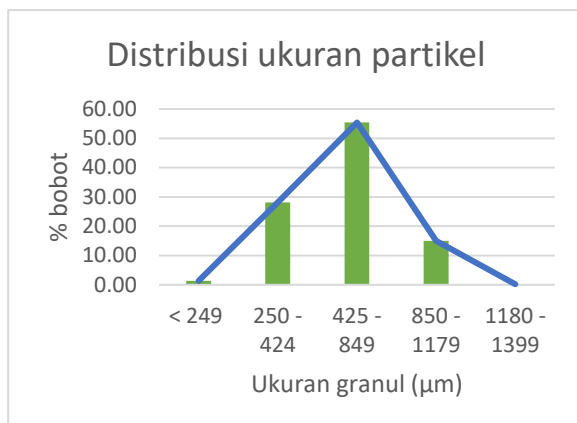
- Formula 8C Salut



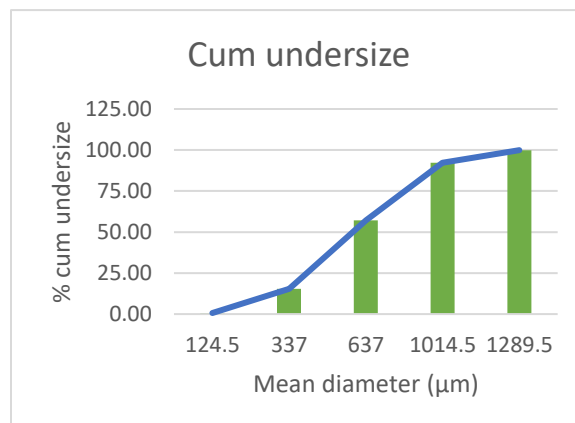
- Formula 8C Salut



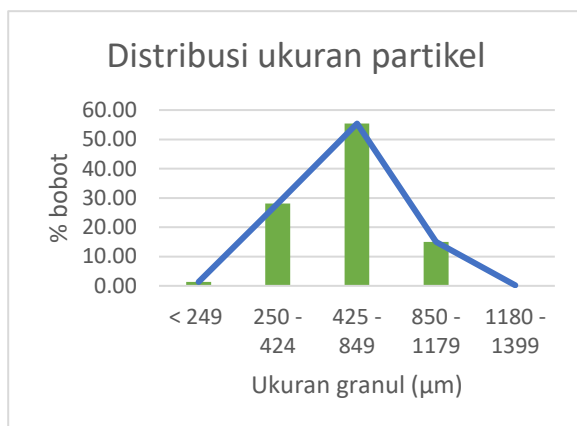
- Formula 9A Salut



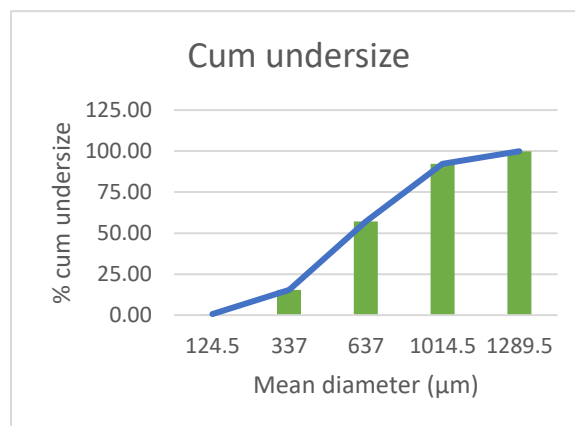
- Formula 9A Salut



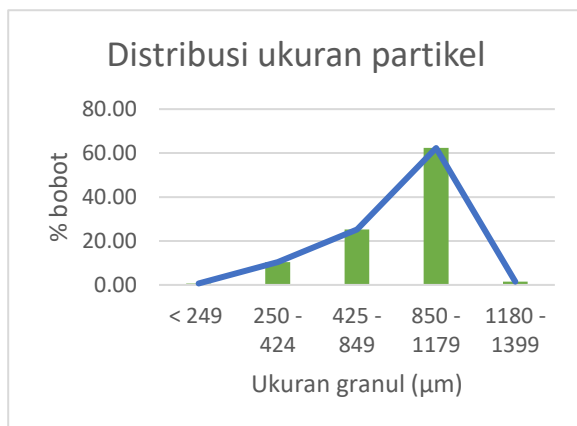
- Formula 9B Salut



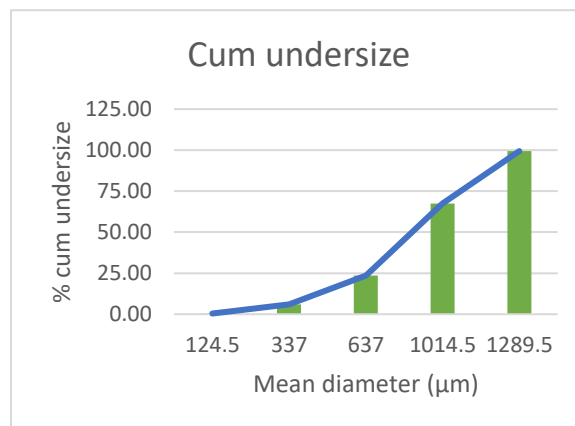
- Formula 9B Salut



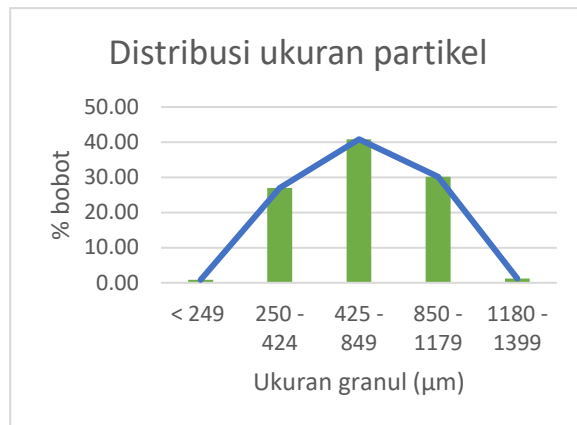
- Formula 9C Salut



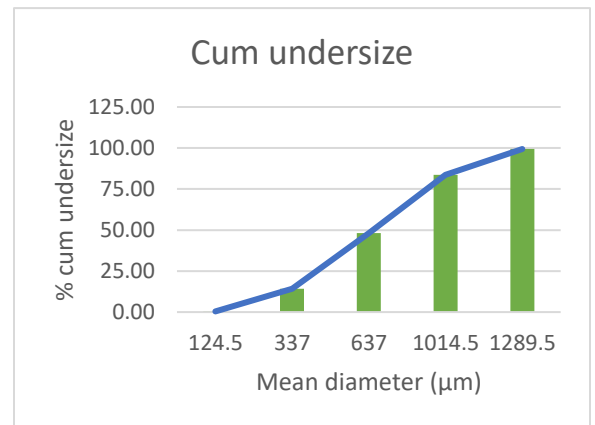
- Formula 9C Salut



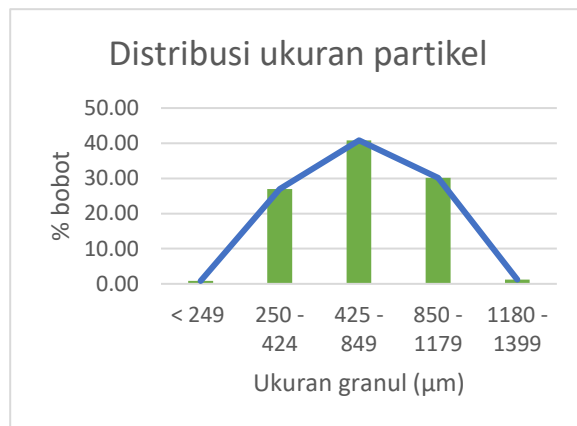
- Formula 10A Salut



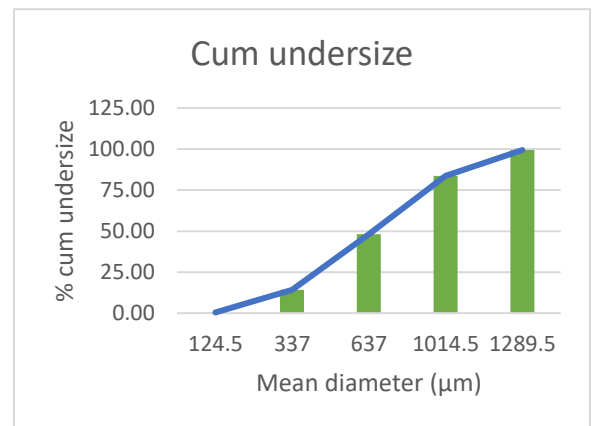
- Formula 10A Salut



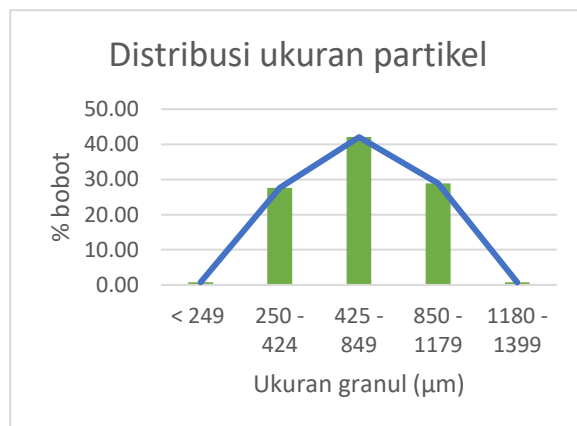
- Formula 10B Salut



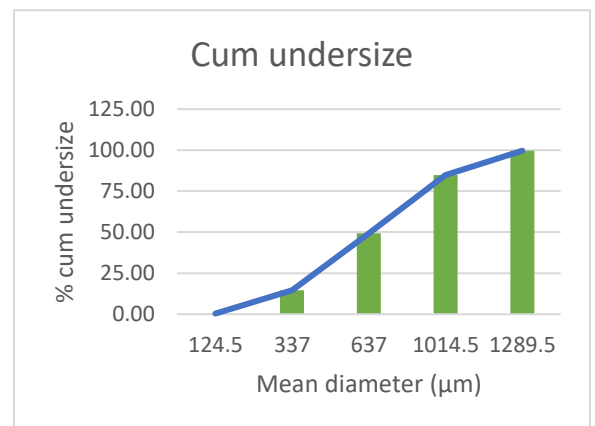
- Formula 10B Salut



- Formula 10C Salut



- Formula 10C Salut



Lampiran 17. Data Statistik

A. Optimasi Pengikat (PVP K30)

1) Susut pengeringan

Tests of Normality

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Kadar_air Formula 6 P	.357	3	.	.815	3	.150
Formula 7 P	.297	3	.	.917	3	.443
Formula 8 P	.196	3	.	.996	3	.878
Formula 9 P	.381	3	.	.760	3	.023
Formula 10 P	.315	3	.	.891	3	.358

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Kadar_air

Levene Statistic	df1	df2	Sig.
3.738	4	10	.041

Test Statistics^{a,b}

	Kadar_air
Chi-Square	6.420
df	4
Asymp. Sig.	.170

a. Kruskal Wallis Test

b. Grouping Variable:
Formula

2) Laju alir

Tests of Normality

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Laju_alir Formula 1	.346	3	.	.837	3	.206
Formula 2	.241	3	.	.974	3	.688
Formula 3	.246	3	.	.970	3	.668
Formula 4	.241	3	.	.974	3	.688
Formula 5	.196	3	.	.996	3	.878

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Laju_alir

Levene Statistic	df1	df2	Sig.
.407	4	10	.800

ANOVA

Laju_alir

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.648	4	2.412	183.459	.000
Within Groups	.131	10	.013		
Total	9.779	14			

Multiple Comparisons

Dependent Variable: Laju_alir

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	.57000 [*]	.09362	.000	.3614	.7786
	Formula 3	-.37000 [*]	.09362	.003	-.5786	-.1614
	Formula 4	1.98667 [*]	.09362	.000	1.7781	2.1953
	Formula 5	.60333 [*]	.09362	.000	.3947	.8119
Formula 2	Formula 1	-.57000 [*]	.09362	.000	-.7786	-.3614
	Formula 3	-.94000 [*]	.09362	.000	-1.1486	-.7314
	Formula 4	1.41667 [*]	.09362	.000	1.2081	1.6253
	Formula 5	.03333	.09362	.729	-.1753	.2419
Formula 3	Formula 1	.37000 [*]	.09362	.003	.1614	.5786
	Formula 2	.94000 [*]	.09362	.000	.7314	1.1486
	Formula 4	2.35667 [*]	.09362	.000	2.1481	2.5653
	Formula 5	.97333 [*]	.09362	.000	.7647	1.1819
Formula 4	Formula 1	-1.98667 [*]	.09362	.000	-2.1953	-1.7781
	Formula 2	-1.41667 [*]	.09362	.000	-1.6253	-1.2081
	Formula 3	-2.35667 [*]	.09362	.000	-2.5653	-2.1481
	Formula 5	-1.38333 [*]	.09362	.000	-1.5919	-1.1747
Formula 5	Formula 1	-.60333 [*]	.09362	.000	-.8119	-.3947
	Formula 2	-.03333	.09362	.729	-.2419	.1753
	Formula 3	-.97333 [*]	.09362	.000	-1.1819	-.7647
	Formula 4	1.38333 [*]	.09362	.000	1.1747	1.5919

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

3) Sudut istirahat**Tests of Normality**

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Sudur_istirahat	Formula 1	.176	3	.1000	3	.975
	Formula 2	.336	3	.856	3	.255
	Formula 3	.176	3	1.000	3	.985
	Formula 4	.269	3	.950	3	.568
	Formula 5	.385	3	.750	3	.000

a. Lilliefors Significance Correction

Test Statistics^{a,b}

	Sudur_istirah at
Chi-Square	6.704
df	4
Asymp. Sig.	.152

a. Kruskal Wallis Test

b. Grouping Variable:
Formula**4) Distribusi ukuran partikel****Tests of Normality**

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Formula		Statistic	df	Sig.	Statistic	df	Sig.
Distribusi_ukuran_partikel	Formula 1	.219	3	.	.987	3	.780
	Formula 2	.253	3	.	.964	3	.637
	Formula 3	.219	3	.	.987	3	.780
	Formula 4	.219	3	.	.987	3	.780
	Formula 5	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Distribusi_ukuran_partikel

Levene Statistic	df1	df2	Sig.
1.058	4	10	.426

ANOVA

Distribusi_ukuran_partikel

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.067	4	.017	19.894	.000
Within Groups	.008	10	.001		
Total	.076	14			

Multiple Comparisons

Dependent Variable: 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	-.16333 [*]	.02376	.000	-.2163	-.1104
	Formula 3	-.07667 [*]	.02376	.009	-.1296	-.0237
	Formula 4	.01333	.02376	.587	-.0396	.0663
	Formula 5	.00000	.02376	1.000	-.0529	.0529
Formula 2	Formula 1	.16333 [*]	.02376	.000	.1104	.2163
	Formula 3	.08667 [*]	.02376	.004	.0337	.1396
	Formula 4	.17667 [*]	.02376	.000	.1237	.2296
	Formula 5	.16333 [*]	.02376	.000	.1104	.2163
Formula 3	Formula 1	.07667 [*]	.02376	.009	.0237	.1296
	Formula 2	-.08667 [*]	.02376	.004	-.1396	-.0337
	Formula 4	.09000 [*]	.02376	.004	.0371	.1429
	Formula 5	.07667 [*]	.02376	.009	.0237	.1296
Formula 4	Formula 1	-.01333	.02376	.587	-.0663	.0396
	Formula 2	-.17667 [*]	.02376	.000	-.2296	-.1237
	Formula 3	-.09000 [*]	.02376	.004	-.1429	-.0371
	Formula 5	-.01333	.02376	.587	-.0663	.0396
Formula 5	Formula 1	.00000	.02376	1.000	-.0529	.0529
	Formula 2	-.16333 [*]	.02376	.000	-.2163	-.1104
	Formula 3	-.07667 [*]	.02376	.009	-.1296	-.0237
	Formula 4	.01333	.02376	.587	-.0396	.0663

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

B. Pelet Ekstrak Katuk**1) Susut pengeringan****Tests of Normality**

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Kadar_alir_pelet_ekstrak Formula 6	.328	3	.	.871	3	.298
Formula 7	.175	3	.	1.000	3	.990
Formula 8	.343	3	.	.842	3	.220
Formula 9	.247	3	.	.969	3	.663
Formula 10	.328	3	.	.871	3	.298

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Kadar_alir_pelet_ekstrak

Levene Statistic	df1	df2	Sig.
1.028	4	10	.439

ANOVA

Kadar_alir_pelet_ekstrak

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.127	4	.032	.262	.896
Within Groups	1.216	10	.122		
Total	1.344	14			

2) Laju alir**Tests of Normality**

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Laju_alir_pelet_ekstrak Formula 6	.204	3	.	.993	3	.843
Formula 7	.253	3	.	.964	3	.637
Formula 8	.227	3	.	.983	3	.747
Formula 9	.292	3	.	.923	3	.463
Formula 10	.286	3	.	.930	3	.490

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Laju_alir_pelet_ekstrak

Levene Statistic	df1	df2	Sig.
2.580	4	10	.102

ANOVA

Laju_alir_pelet_ekstrak

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.112	4	2.528	761.438	.000
Within Groups	.033	10	.003		
Total	10.145	14			

Multiple Comparisons

Dependent Variable: Laju_alir_pelet_ekstrak

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 6	Formula 7	-.06000	.04705	.231	-.1648	.0448
	Formula 8	-.01667	.04705	.730	-.1215	.0882
	Formula 9	.08667	.04705	.095	-.0182	.1915
	Formula 10	-2.04667*	.04705	.000	-2.1515	-1.9418
Formula 7	Formula 6	.06000	.04705	.231	-.0448	.1648
	Formula 8	.04333	.04705	.379	-.0615	.1482
	Formula 9	.14667*	.04705	.011	.0418	.2515
	Formula 10	-1.98667*	.04705	.000	-2.0915	-1.8818
Formula 8	Formula 6	.01667	.04705	.730	-.0882	.1215
	Formula 7	-.04333	.04705	.379	-.1482	.0615
	Formula 9	.10333	.04705	.053	-.0015	.2082
	Formula 10	-2.03000*	.04705	.000	-2.1348	-1.9252
Formula 9	Formula 6	-.08667	.04705	.095	-.1915	.0182
	Formula 7	-.14667*	.04705	.011	-.2515	-.0418
	Formula 8	-.10333	.04705	.053	-.2082	.0015
	Formula 10	-2.13333*	.04705	.000	-2.2382	-2.0285
Formula 10	Formula 6	2.04667*	.04705	.000	1.9418	2.1515
	Formula 7	1.98667*	.04705	.000	1.8818	2.0915
	Formula 8	2.03000*	.04705	.000	1.9252	2.1348
	Formula 9	2.13333*	.04705	.000	2.0285	2.2382

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

3) Sudut istirahat

Tests of Normality

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sudut_istirahat_pelet_ekstrak	Formula 6	.244	3	.	.971	3	.676
	Formula 7	.385	3	.	.750	3	.000
	Formula 8	.320	3	.	.884	3	.337
	Formula 9	.237	3	.	.977	3	.708
	Formula 10	.285	3	.	.932	3	.495

a. Lilliefors Significance Correction

Test Statistics^{a,b}

	Sudur_istirahat
Chi-Square	6.704
df	4
Asymp. Sig.	.152

a. Kruskal Wallis Test

b. Grouping Variable:
Formula

4) Distribusi ukuran partikel

Tests of Normality

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Distribusi_ukuran_partikel_pelet_ekstrak	Formula 6	.385	3	.	.750	3	.000
	Formula 7	.253	3	.	.964	3	.637
	Formula 8	.337	3	.	.855	3	.253
	Formula 9	.362	3	.	.803	3	.122
	Formula 10	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test Statistics^{a,b}

	Distribusi_ukuran_partikel_pelet_ekstrak
Chi-Square	10.395
df	4
Asymp. Sig.	.034

a. Kruskal Wallis Test

b. Grouping Variable:
Formula

5) Waktu melarut

Tests of Normality

Formula		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Waktu_melarut	Formula 6P	.292	3	.	.923	3	.463
	Formula 7P	.213	3	.	.990	3	.806
	Formula 8P	.232	3	.	.980	3	.726
	Formula 9P	.183	3	.	.999	3	.931
	Formula 10P	.282	3	.	.936	3	.510

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Waktu_melarut

Levene Statistic	df1	df2	Sig.
1.294	4	10	.336

ANOVA

Waktu_melarut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.919	4	.480	44.927	.000
Within Groups	.107	10	.011		
Total	2.026	14			

Multiple Comparisons

Dependent Variable: Waktu_melarut

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 6P	Formula 7P	-.15000	.08438	.106	-.3380	.0380
	Formula 8P	-.69667 [*]	.08438	.000	-.8847	-.5087
	Formula 9P	-.24667 [*]	.08438	.015	-.4347	-.0587
	Formula 10P	-.95333 [*]	.08438	.000	-1.1413	-.7653
Formula 7P	Formula 6P	.15000	.08438	.106	-.0380	.3380
	Formula 8P	-.54667 [*]	.08438	.000	-.7347	-.3587
	Formula 9P	-.09667	.08438	.279	-.2847	.0913
	Formula 10P	-.80333 [*]	.08438	.000	-.9913	-.6153
Formula 8P	Formula 6P	.69667 [*]	.08438	.000	.5087	.8847
	Formula 7P	.54667 [*]	.08438	.000	.3587	.7347
	Formula 9P	.45000 [*]	.08438	.000	.2620	.6380
	Formula 10P	-.25667 [*]	.08438	.012	-.4447	-.0687
Formula 9P	Formula 6P	.24667 [*]	.08438	.015	.0587	.4347
	Formula 7P	.09667	.08438	.279	-.0913	.2847
	Formula 8P	-.45000 [*]	.08438	.000	-.6380	-.2620
	Formula 10P	-.70667 [*]	.08438	.000	-.8947	-.5187
Formula 10P	Formula 6P	.95333 [*]	.08438	.000	.7653	1.1413
	Formula 7P	.80333 [*]	.08438	.000	.6153	.9913
	Formula 8P	.25667 [*]	.08438	.012	.0687	.4447
	Formula 9P	.70667 [*]	.08438	.000	.5187	.8947

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

C. Pelet Salut

1) Susut pengeringan

Tests of Normality

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Kadar_air_pelet_salut Formula 6P	.365	3	.	.797	3	.107
Formula 7P	.232	3	.	.980	3	.726
Formula 8P	.277	3	.	.941	3	.530
Formula 9P	.361	3	.	.807	3	.131
Formula 10P	.310	3	.	.899	3	.383

a. Lilliefors Significance Correction

ANOVA

Kadar_air_pelet_salut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.686	4	.422	1.059	.425
Within Groups	3.981	10	.398		
Total	5.667	14			

2) Laju alir

Tests of Normality

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Laju_alir_pelet_salut Formula 6P	.330	3	.	.867	3	.288
Formula 7P	.194	3	.	.996	3	.886
Formula 8P	.317	3	.	.888	3	.348
Formula 9P	.367	3	.	.792	3	.096
Formula 10P	.306	3	.	.905	3	.400

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Laju_alir_pelet_salut

Levene Statistic	df1	df2	Sig.
1.558	4	10	.259

ANOVA

Laju_alir_pelet_salut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.279	4	3.070	83.069	.000
Within Groups	.370	10	.037		
Total	12.648	14			

Multiple Comparisons

Dependent Variable: Laju_alir_pelet_salut

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 6P	Formula 7P	-1.11000 [*]	.15696	.000	-1.4597	-.7603
	Formula 8P	-1.54333 [*]	.15696	.000	-1.8931	-1.1936
	Formula 9P	-2.10667 [*]	.15696	.000	-2.4564	-1.7569
	Formula 10P	-2.65000 [*]	.15696	.000	-2.9997	-2.3003
Formula 7P	Formula 6P	1.11000 [*]	.15696	.000	.7603	1.4597
	Formula 8P	-.43333 [*]	.15696	.020	-.7831	-.0836
	Formula 9P	-.99667 [*]	.15696	.000	-1.3464	-.6469
	Formula 10P	-1.54000 [*]	.15696	.000	-1.8897	-1.1903
Formula 8P	Formula 6P	1.54333 [*]	.15696	.000	1.1936	1.8931
	Formula 7P	.43333 [*]	.15696	.020	.0836	.7831
	Formula 9P	-.56333 [*]	.15696	.005	-.9131	-.2136
	Formula 10P	-1.10667 [*]	.15696	.000	-1.4564	-.7569
Formula 9P	Formula 6P	2.10667 [*]	.15696	.000	1.7569	2.4564
	Formula 7P	.99667 [*]	.15696	.000	.6469	1.3464
	Formula 8P	.56333 [*]	.15696	.005	.2136	.9131
	Formula 10P	-.54333 [*]	.15696	.006	-.8931	-.1936
Formula 10P	Formula 6P	2.65000 [*]	.15696	.000	2.3003	2.9997
	Formula 7P	1.54000 [*]	.15696	.000	1.1903	1.8897
	Formula 8P	1.10667 [*]	.15696	.000	.7569	1.4564
	Formula 9P	.54333 [*]	.15696	.006	.1936	.8931

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

3) Sudut istirahat

Test of Homogeneity of Variances

Sudut_istirahat_pelet_salut

Levene Statistic	df1	df2	Sig.
3.314	4	10	.057

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sudut_istirahat_pelet_salut	Formula 6P	.337	3	.	.854	3	.250
	Formula 7P	.267	3	.	.951	3	.574
	Formula 8P	.364	3	.	.799	3	.112
	Formula 9P	.210	3	.	.991	3	.820
	Formula 10P	.299	3	.	.914	3	.430

a. Lilliefors Significance Correction

ANOVA

Sudut_istirahat_pelet_salut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.208	4	6.302	7.304	.005
Within Groups	8.628	10	.863		
Total	33.836	14			

Multiple Comparisons

Dependent Variable: Sudut_istirahat_pelet_salut

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 6P	Formula 7P	-.83000	.75842	.299	-2.5199	.8599
	Formula 8P	2.34667 [*]	.75842	.011	.6568	4.0365
	Formula 9P	-.60667	.75842	.442	-2.2965	1.0832
	Formula 10P	1.82667 [*]	.75842	.037	.1368	3.5165
Formula 7P	Formula 6P	.83000	.75842	.299	-.8599	2.5199
	Formula 8P	3.17667 [*]	.75842	.002	1.4868	4.8665
	Formula 9P	.22333	.75842	.774	-1.4665	1.9132
	Formula 10P	2.65667 [*]	.75842	.006	.9668	4.3465
Formula 8P	Formula 6P	-2.34667 [*]	.75842	.011	-4.0365	-.6568
	Formula 7P	-3.17667 [*]	.75842	.002	-4.8665	-1.4868
	Formula 9P	-2.95333 [*]	.75842	.003	-4.6432	-1.2635
	Formula 10P	-.52000	.75842	.509	-2.2099	1.1699
Formula 9P	Formula 6P	.60667	.75842	.442	-1.0832	2.2965
	Formula 7P	-.22333	.75842	.774	-1.9132	1.4665
	Formula 8P	2.95333 [*]	.75842	.003	1.2635	4.6432
	Formula 10P	2.43333 [*]	.75842	.009	.7435	4.1232
Formula 10P	Formula 6P	-1.82667 [*]	.75842	.037	-3.5165	-.1368
	Formula 7P	-2.65667 [*]	.75842	.006	-4.3465	-.9668
	Formula 8P	.52000	.75842	.509	-1.1699	2.2099
	Formula 9P	-2.43333 [*]	.75842	.009	-4.1232	-.7435

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

4) Distribusi ukuran partikel

Tests of Normality

Formula		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Distribusi_ukuran_partikel_pelet_salut	Formula 6P	.175	3	.	1.000	3	1.000
	Formula 7P	.292	3	.	.923	3	.463
	Formula 8P	.175	3	.	1.000	3	1.000
	Formula 9P	.337	3	.	.855	3	.253
	Formula 10P	.314	3	.	.893	3	.363

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Distribusi_ukuran_partikel_pelet_salut

Levene Statistic	df1	df2	Sig.
4.317	4	10	.028

ANOVA

Distribusi_ukuran_partikel_pelet_salut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.077	4	.019	15.447	.000
Within Groups	.012	10	.001		
Total	.089	14			

Multiple Comparisons

Dependent Variable: Distribusi_ukuran_partikel_pelet_salut

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 6P	Formula 7P	-.03000	.02883	.323	-.0942	.0342
	Formula 8P	.02000	.02883	.504	-.0442	.0842
	Formula 9P	.17667*	.02883	.000	.1124	.2409
	Formula 10P	.03000	.02883	.323	-.0342	.0942
Formula 7P	Formula 6P	.03000	.02883	.323	-.0342	.0942
	Formula 8P	.05000	.02883	.114	-.0142	.1142
	Formula 9P	.20667*	.02883	.000	.1424	.2709
	Formula 10P	.06000	.02883	.064	-.0042	.1242
Formula 8P	Formula 6P	-.02000	.02883	.504	-.0842	.0442
	Formula 7P	-.05000	.02883	.114	-.1142	.0142
	Formula 9P	.15667*	.02883	.000	.0924	.2209
	Formula 10P	.01000	.02883	.736	-.0542	.0742
Formula 9P	Formula 6P	-.17667*	.02883	.000	-.2409	-.1124
	Formula 7P	-.20667*	.02883	.000	-.2709	-.1424
	Formula 8P	-.15667*	.02883	.000	-.2209	-.0924
	Formula 10P	-.14667*	.02883	.000	-.2109	-.0824
Formula 10P	Formula 6P	-.03000	.02883	.323	-.0942	.0342
	Formula 7P	-.06000	.02883	.064	-.1242	.0042
	Formula 8P	-.01000	.02883	.736	-.0742	.0542
	Formula 9P	.14667*	.02883	.000	.0824	.2109

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

5) Volume sedimentasi

Tests of Normality

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Volume_sedimentasi_pel et_salut	Formula 6P	.314	3	.	.893	3
	Formula 7P	.219	3	.	.987	3
	Formula 8P	.324	3	.	.878	3
	Formula 9P	.265	3	.	.953	3
	Formula 10P	.314	3	.	.893	3

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Volume_sedimentasi_pelet_salut

Levene Statistic	df1	df2	Sig.
1.570	4	10	.256

ANOVA

Volume_sedimentasi_pelet_salut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.014	4	.004	.942	.479
Within Groups	.037	10	.004		
Total	.051	14			

6) Waktu melarut

Tests of Normality

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Waktu_melarut_pelet_sal ut	Formula 6 P	.263	3	.	.955	3
	Formula 7 P	.328	3	.	.871	3
	Formula 8 P	.292	3	.	.923	3
	Formula 9 P	.263	3	.	.955	3
	Formula 10 P	.204	3	.	.993	3

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Waktu_melarut_pelet_salut

Levene Statistic	df1	df2	Sig.
1.076	4	10	.418

ANOVA

Waktu_melarut_pelet_salut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.465	4	.116	28.372	.000
Within Groups	.041	10	.004		
Total	.506	14			

Multiple Comparisons

Dependent Variable: Waktu_melarut_pelet_salut

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 6 P	Formula 7 P	-.42333*	.05228	.000	-.5398	-.3068
	Formula 8 P	-.44333*	.05228	.000	-.5598	-.3268
	Formula 9 P	-.42000*	.05228	.000	-.5365	-.3035
	Formula 10 P	-.46667*	.05228	.000	-.5832	-.3502
Formula 7 P	Formula 6 P	.42333*	.05228	.000	.3068	.5398
	Formula 8 P	-.02000	.05228	.710	-.1365	.0965
	Formula 9 P	.00333	.05228	.950	-.1132	.1198
	Formula 10 P	-.04333	.05228	.427	-.1598	.0732
Formula 8 P	Formula 6 P	.44333*	.05228	.000	.3268	.5598
	Formula 7 P	.02000	.05228	.710	-.0965	.1365
	Formula 9 P	.02333	.05228	.665	-.0932	.1398
	Formula 10 P	-.02333	.05228	.665	-.1398	.0932
Formula 9 P	Formula 6 P	.42000*	.05228	.000	.3035	.5365
	Formula 7 P	-.00333	.05228	.950	-.1198	.1132
	Formula 8 P	-.02333	.05228	.665	-.1398	.0932
	Formula 10 P	-.04667	.05228	.393	-.1632	.0698
Formula 10 P	Formula 6 P	.46667*	.05228	.000	.3502	.5832
	Formula 7 P	.04333	.05228	.427	-.0732	.1598
	Formula 8 P	.02333	.05228	.665	-.0932	.1398
	Formula 9 P	.04667	.05228	.393	-.0698	.1632

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

d. Uji Hedonik

1. Parameter bentuk

Tests of Between-Subjects Effects

Dependent Variable: Bentuk

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	53.567 ^a	33	1.623	10.905	.000
Intercept	2440.167	1	2440.167	16393.398	.000
Sampel	.333	4	.083	.560	.692
Panelis	53.233	29	1.836	12.332	.000
Error	17.267	116	.149		
Total	2511.000	150			
Corrected Total	70.833	149			

a. R Squared = .756 (Adjusted R Squared = .687)

2. Parameter rasa

Tests of Between-Subjects Effects

Dependent Variable: rasa

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	32.067 ^a	33	.972	2.170	.001
Intercept	1944.000	1	1944.000	4342.182	.000
Sampel	2.867	4	.717	1.601	.179
Panelis	29.200	29	1.007	2.249	.001
Error	51.933	116	.448		
Total	2028.000	150			
Corrected Total	84.000	149			

a. R Squared = .382 (Adjusted R Squared = .206)

3. Parameter aroma

Tests of Between-Subjects Effects

Dependent Variable: aroma

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	62.480 ^a	33	1.893	7.447	.000
Intercept	2002.027	1	2002.027	7874.156	.000
Sampel	.107	4	.027	.105	.981
Panelis	62.373	29	2.151	8.459	.000
Error	29.493	116	.254		
Total	2094.000	150			
Corrected Total	91.973	149			

a. R Squared = .679 (Adjusted R Squared = .588)

4. Parameter warna

Tests of Between-Subjects Effects

Dependent Variable: Warna

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.833 ^a	33	.965	4.144	.000
Intercept	2204.167	1	2204.167	9469.753	.000
Sampel	1.800	4	.450	1.933	.110
Panelis	30.033	29	1.036	4.449	.000
Error	27.000	116	.233		
Total	2263.000	150			
Corrected Total	58.833	149			

a. R Squared = .541 (Adjusted R Squared = .411)

Lampiran 18. Data Uji Hedonik

FORMULA																				
No	F6 P				F7 P				F8 P				F9 P				F10 P			
	W	R	B	A	W	R	B	A	W	R	B	A	W	R	B	A	W	R	B	A
1	4	3	3	2	4	3	3	2	4	3	3	2	4	3	3	2	3	3	3	2
2	5	5	5	3	4	4	5	3	4	4	5	3	4	3	5	2	4	3	5	2
3	5	4	5	4	5	4	5	4	5	3	5	4	5	3	5	4	5	4	5	4
4	3	3	4	4	4	3	4	4	4	3	4	4	4	4	4	4	4	3	4	4
5	4	4	5	5	4	4	5	5	4	5	5	5	4	4	5	5	4	3	5	5
6	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	3	4	4
7	3	3	3	3	3	4	3	4	3	4	3	4	4	5	3	5	4	4	4	5
8	4	3	4	3	4	3	4	3	4	4	4	4	3	4	4	4	3	4	4	4
9	4	3	4	4	3	4	4	4	3	3	4	4	3	4	4	4	3	3	4	4
10	4	3	3	3	4	3	3	3	4	3	3	3	4	4	4	4	4	4	4	4
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12	4	3	4	3	3	3	3	3	3	3	3	4	3	4	3	3	3	4	3	3
13	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
14	5	4	5	4	5	4	5	4	4	3	5	3	3	3	5	3	3	2	5	2
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17	4	3	5	2	4	3	4	3	3	4	3	4	3	3	3	5	2	3	4	5
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21	4	4	4	4	4	3	4	4	4	3	3	4	3	4	3	4	3	3	3	5
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23	4	5	4	4	4	5	4	4	4	2	4	3	4	3	4	3	4	4	4	4
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25	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	3	4	4
26	3	4	4	3	2	3	5	3	2	2	4	3	4	2	4	3	3	2	4	2
27	3	4	3	4	4	3	4	4	4	4	4	4	4	4	4	4	3	4	4	4
28	4	2	4	4	4	2	4	4	4	3	4	4	4	3	4	4	4	3	4	4
29	4	5	4	4	4	5	4	4	4	2	4	3	4	3	4	3	4	4	4	3
30	5	5	5	3	4	4	5	3	4	4	5	3	4	3	5	2	4	3	5	3

Keterangan :

W : Warna

B : Bentuk

R : Rasa

A : Aroma