

DAFTAR PUSTAKA

- Aini, n., wijnarko, g., & sustriawan, b. (2016). Sifat fisik, kimia, dan fungsional tepung jagung yang diproses melalui
- Amalia Adha, A. S., & Suseno, S. H. (2020). Pola konsumsi pangan pokok dan kontribusinya terhadap tingkat kecukupan energi masyarakat Desa Sukadama. *Jurnal Pusat Inovasi Masyarakat*, 2(6), 988–995. <https://journal.ipb.ac.id/index.php/pim/article/view/33271>
- Anggraeni, G. D., Nissa, C., Candra, A., & Marfu'ah Kurniawati, D. (2023). analisis kandungan gizi dan viskositas formula enteral berbasis tepung sorgum dan tepung kedelai untuk diabetes mellitus. 12, 287–295. <http://ejournal3.undip.ac.id/index.php/jnc/>
- Ariani, d., angwar, m., khasanah, y., & nuraeni, t. (2013). Pemberian makanan enteral berformulasi bahan pangan lokal terhadap kadar zat besi dan hemoglobin pada tikus putih (*rattus norvegicus*) the feeding of enteral nutrition formulated with local food material toward the level of haemoglobin and iron in white rat (*rattus norvegicus*). In *jurnal gizi klinik indonesia* (vol. 10, issue 1).
- Asmarani, f., wirjatmadi, b., adriani, m., gizi, d., & masyarakat, k. (2015). Nomer 2
- Cahyo, f. D., & kosasih, c. E. (2021). Pemberian nutrisi enteral sebagai kontrol glikemik pada pasien kritis di unit perawatan intensif. *Jurnal*
- Campbell, a. P., & rains, t. M. (2015). Dietary protein is important in the practical management of prediabetes and type 2 diabetes. *Journal of nutrition*, 145(1), 164s-169s. <Https://doi.org/10.3945/jn.114.194878>
- Catfish, soybean tempe, yellow pump (vol. 6). <Http://jos.unsoed.ac.id/index.php/jgps>
- Cesar wicaksana, g., & sholiah, a. (2022). Pengaruh suhu terhadap kelarutan dan viskositas pada gula pasir.
- Chew KY, Brownlee IA. The impact of supplementation with dietary fibers on weight loss: A systematic review. *Bioact Carbohydr Diet Fibre*. 2017;10:1–10. Doi:10.1016/j.bcdf.2017.05.002
- David sengka, denny ngantung, & corry mahama. (2011). Profil gula darah sewaktu (gds) dan gula darah puasa (gdp) pasien stroke dengan diabetes mellitus tipe 2 yang dirawat inap di bagian neurologi prof. Dr. R. D. Kandou manado periode januari.
- Dwiana fitriani, s., & asih setiarini. (2024). Manfaat serat larut air untuk Edisi desember 2015, hal. 24-35ilmiah kedokteran. In ilmiah kedokteran (vol. 4).
- Ayu kurnia putri, w., zaki, i., & ratna ramadhan, g. (2022). Kandungan gizi Effect of red beans consumption on anemia treatment of pregnant woman in puskesmas sendana kota palopo (vol. 08,issue 01).
- Eliana, f., handoko, i. S., ambarwati, f. D., & setiawati, a. (2018). Profil respons glukosa darah dan tingkat rasa kenyang setelah pemberian diabetasol® dibandingkan makanan padat gizi terkontrol pada pasien diabetes melitus tipe 2 (vol. 45, issue 7).

- Endokrinologi indonesia pedoman pengelolaan dan pencegahan diabetes melitus tipe, p. (2021). Pedoman pengelolaan dan pencegahan diabetes melitus tipe 2 dewasa di indonesia-2021 perkeni i penerbit pb. Perkeni.
- F. S. Dioguardi, & shaish. (2013). Adverse effects associated with protein intake above the recommended dietary allowance for adults.
- Fadhilatunnur, L., et al. (2015). Kandungan serat daun kolesom (arum manis) kering. *Jurnal Teknologi Pangan*, 13(2), 78–84. <https://jurnal.ugm.ac.id/agritech/article/view/29726>
- Fatimah, r. N. (2015). Restyana noor f|diabetes melitus tipe 2 diabetes melitus tipe 2. In j majority | (vol. 4).
- Fermentasi physical, chemical, and functional properties of corn flour processed by fermentation. In agritech (vol. 36, issue 2).
- Fikriyah, h., ahmad habibi, n., darningsih, s., & gizi politeknik kesehatan kementerian kesehatan padang, j. (2024). Pengaruh penambahan inulin terhadap mutu sensorik, kandungan serat, dan daya terima yoghurt. Jurnal sehat mandiri, 19.
- Formula enteral berbasis ubi ungu, ikan lele, tempe kedelai, labu kuning nutritional content of enteral formula based on purple sweet,
- Hartati, Y., Erian, C., Telisa, I., Meilina, A., Podojoyo, P., & Faridi, A. (2023). The potential of catfish (*Clarias gariepinus*) and yellow pumpkin (*Cucurbita moschata*) as enteral formulas for diabetes mellitus. ARGIPA (Arsip Gizi Dan Pangan), 8(2), 143–152. <Https://doi.org/10.22236/argipa.v8i2.11902>
- Hawa, i. I., & murbawani, a. (2015). Pengaruh pemberian formula enteral berbahan dasar labu kuning (*cucurbita moschata*) terhadap kadar glukosa darah postprandial tikus diabetes melitus. <Http://ejournal-s1.undip.ac.id/index.php/jnc>
- Hervik AK, Svihus B. The Role of Fiber in Energy Balance. *J Nutr Metab*. 2019;2019:4983657. Doi:10.1155/2019/4983657
- <Https://www.goodnewsfromindonesia.id/2021/11/28/menilik-upaya-pemerintah-pe-rangi-kasus-diabetes-di-indonesia>
- Https://yankes.kemkes.go.id/view_artikel/3230/mengenal-komplikasi-diabetes-mellitus
- Hubungan pengetahuan tentang diabetes mellitus dengan kepatuhan menjalani pengobatan pada pasien diabetes mellitus di kecamatan kertasemaya tahun 2021. 2(1).
- Hyperglycaemia: expert consensus. *Nutrients*, 15(23). <Https://doi.org/10.3390/nu15234976>
- Ikan kembung (*rastrelliger brachysoma*) pada pembuatan nastar kaya protein substitution of mackerel fish flour (*rastrelliger brachysoma*)
- Indrastati, n., & anjani, g. (2016). Snack bar kacang merah dan tepung umbi garut sebagai alternatif makanan selingan dengan indeks glikemik rendah. *Journal of nutrition college*, 5(4), 546. <Http://ejournal-s1.undip.ac.id/index.php/jnc>
- Indri astuti, s., lestari, p., aprianingsih, t., zaidaturrohmah sumardani, t.,

- Indrie ambarsari, s dewi anomasi, & gama n oktraningrum. (2015). Pembuatan dan pemanfaatan tepung jagung.
- Ishak, h. K., naiu, a. S., & mile, l. (2024). Pengaruh substisutu tepung ikan kembung (rastrelliger kanagurta) pada tepung labu kuning (cucurbita moschata) terhadap karakteristik kue semprit. Media
- Izzaty izzul hawa. (2015). Pengaruh pemberian formula enteral berbahan dasar labu kuning (cucurbita moschata) terhadap kadar glukosa darah postprandial tikus diabetes melitus.
- Jurnal pendidikan ipa, 11(1), 19–21.
- Jurnal, h., yulianingsih, n., & asyari, h. (2022). Jurnal pengabdian ilmu kesehatan Kelautan dan perikanan dumai jl wan amir no, p., barat, d., riau, p., negeri tegal jalan martoloyo kotak pos, s., & panggung kecamatan tegal timur, k.
- Keperawatan silampari, 430–443. [Https://doi.org/10.31539/jks.v5i1.3033](https://doi.org/10.31539/jks.v5i1.3033)
- Kontrol glikemik pada diabetes mellitus tipe 2: systematic review. Media publikasi promosi kesehatan indonesia (mppki), 7(3), 569–577. [Https://doi.org/10.56338/mppki.v7i3.4776](https://doi.org/10.56338/mppki.v7i3.4776)
- Laila safira, n., probosari, e., candra, a., ayustaningwarno, f., & Larasati, s. A., agustiyah rosida, d., kanti, w., & cahyani, d. (n.d.). Pengaruh proporsi tepung jagung (zea mays) dan tepung kacang hijau (vigna radiata) terhadap sifat organoleptik brownies kukus.
- Lastriyanto, A., Pranoto, Y., & Arumingtyas, E. L. (2016). Karakteristik tepung tempe hasil fermentasi Rhizopus oligosporus. *Agritech*, 36(4), 423–431. <https://jurnal.ugm.ac.id/agritech/article/view/29726>
- Lestari, z. St. A. S. (2021). Diabetes melitus: review etiologi, patofisiologi, gejala, penyebab, cara pemeriksaan, cara pengobatan dan cara pencegahan. [Http://journal.uin-alauddin.ac.id/index.php/psb](http://journal.uin-alauddin.ac.id/index.php/psb)
- Mcmahon, M. M., Nystrom, E., Braunschweig, C., Miles, J., & Compher, C. (2013). A.S.P.E.N. clinical guidelines: Nutrition support of adult patients with hyperglycemia. *Journal of Parenteral and Enteral Nutrition*, 37(1), 23–36. [Https://doi.org/10.1177/0148607112452001](https://doi.org/10.1177/0148607112452001)
- Mundhi, o. : aini, n. F., & rinawati, w. (n.d.). Substitusi tepung
- Naiu, a. S., talib, y., & husain, r. (2022). Nilai gizi dan hedonik bubur bayi instan dari ubi jalar ungu dan ikan rucah. *Jurnal pascapanen dan bioteknologi kelautan dan perikanan*, 17(2), 125. [Https://doi.org/10.15578/jpbkp.v17i2.877](https://doi.org/10.15578/jpbkp.v17i2.877)
- Nalendrya, i., bakhrul ilmi, i. M., & ayu arini, f. (2016). Sosis ikan kembung Nastar rich in protein. In mundhi nur fajar aini).
- Ni made rizka erwinda sari, ni wayan wisaniyasa, & a. A. I. Sri wiadnyani. (2020). Studi kadar gizi, serat dan antosianin tepung kacang merah dan tepung kecambah kacang merah.
- Nindhi kistianita moch yunus rara warih gayatri, a. (2018). Analisis faktor risiko diabetes mellitus tipe 2 pada usia produktif dengan pendekatan who stepwise step 1 (core/inti) di puskesmas kendalkerep kota malang.

- Noviasari, s., kusnandar, f., setiyono, a., budijanto, s., ilmu, d., pangan, t., & pertanian, t. (2015). Beras analog sebagai pangan fungsional dengan indeks glikemik rendah (rice analogues as functional food with low glycemic index).
- Nurjanah, S., Wulandari, D., & Anggraeni, R. (2020). Kandungan mineral dan nilai gizi pada produk makanan berbasis kacang-kacangan. *Jurnal Gizi dan Pangan*, 15(2), 87–94.
- Of 2018) fitria megawati 1x , ni putu dewi agustini. In jurnal ilmiah medicamento{vol (vol. 6, issue 1).
- Ojo, o., & brooke, j. (2014). Evaluation of the role of enteral nutrition in managing patients with diabetes: a systematic review. In nutrients (vol. 6, issue 11, pp. 5142–5152). Mdpi ag. <Https://doi.org/10.3390/nu6115142>
- Perkumpulan endokrinologi indonesia. (2021). Pedoman pengelolaan dan pencegahan diabetes melitus tipe 2 dewasa di indonesia-2021 perkeni penerbit pb. Perkeni.
- Piñuel, l., vilcacundo, e., boeri, p., barrio, d. A., morales, d., pinto, a., moran, r., samaniego, i., & carrillo, w. (2019). Extraction of protein concentrate from red bean (*phaseolus vulgaris* l.): antioxidant activity and inhibition of lipid peroxidation. *Journal of applied pharmaceutical science*, 9(9), 045–058. <Https://doi.org/10.7324/japs.2019.90804>
- Prasetyo, A., & Sinaga, T. (2020). Pengaruh metode pengeringan terhadap kandungan kimia dan mutu bahan pangan lokal. *Jurnal Teknologi Pangan*, 11(1), 55–61.
- Puspita sari, i., telisa, i., & kemenkes palembang, p. (2023). Formula modifications for patients with tktp diet ingredients based on tempe flour, corn flour (*zea mays*) and catfish flour (vol. 15, issue 2).
- Putu, n. L., & krismayanti, d. (2020). Studi retrospektif terapi antidiabetik pada penderita diabetes melitus rawat inap di rumah sakit umum ari canti periode 2018 (a retrospective study of antidiabetic therapy on hospitalized diabetes melitus patients in general hospital of ari canti in period
- Qolbi, M. A., et al. (2023). Metode pengukuran kadar air pada produk teh celup menggunakan oven suhu 105°C. *Jurnal Teknik Pangan Universitas Diponegoro*, 12(1), 22–28. <https://ejournal.undip.ac.id/index.php/jtp>
- Rahadiyanti, a. (2021). Hubungan disfagia dengan malnutrisi pada lanjut usia : studi literatur. 10, 257–272.
- Rani ilminawati, prillya indah, & leny budhi. (2024). Formulasi formula enteral blenderized non milk based.
- Rebollo-pérez, m. I., florencio ojeda, l., garcía-luna, p. P., irles rocamora, j. A., olveira, g., lacalle remigio, j. R., arraiza irigoyen, c., calañas continente, a., campos martín, c., fernández soto, m. L., garcía almeida, j. M., lópez, m. L., losada morell, c., luengo pérez, l. M., muñoz de escalona martínez, t., pereira-cunill, j. L., vílchez-lópez, f. J., & rabat-restrepo, j. M. (2023).
- Rizqiyah, a., sutjiati, e., & studi profesi diestisien, p. (2023). Analysis of nutritionnutritional content, viscosity, organoleptic, qualuty and acceptabiluty of modisco iii with substitution if tempe a d carrot extract (vol. 15, issue 2).

- S, F. N., S, M., Manoj P. Samuel, George Ninan, & C, G. J. (2018). Evaluation of Drying Characteristics of Selected Fishes in Dryers developed by ICAR-CIFT. In Fishery Technology (Vol. 55). <Https://www.researchgate.net/publication/322385707>
- Saputri, e. G., setiani, o., yd, a., fakultas, b., masyarakat, k., & lingkungan, p. K. (2018). Hubungan riwayat pajanan pestisida dengan kejadian diabetes melitus tipe 2 pada petani penyemprot di kecamatan ngablak kabupaten magelang (vol. 6).
- Sayer RD, Amankwaah AF, Clevenger HC, Li C, Lutes L, Fernandez ML, et al. Effects of dietary protein and fiber at breakfast on appetite, ad libitum energy intake, and metabolic and hormonal responses in overweight adults. *Nutrients*. 2016;8(1):21. Doi:10.3390/nu8010021
- St umrah, a., & kasrida dahlan, a. (2018). Jurnal voice of midwifery pengaruh konsumsi kacang merah terhadap pengobatan anemia pada ibu hamil di puskesmas sendana kota palopo
- Standards for the use of enteral nutrition in patients with diabetes or stress
- Sulistyaningsih, e., puspitasaki, e., erti, s., dewi, i., zulkarnain, e., oktora, l., kumala, r., antonius, s., widhi, n., yunus, p., & kontak, a. (2016). Tim editor principal contact digital repository universitas jember.
- Teknologi hasil perikanan, 12(2), 135–144.
- Update of mortality attributable to diabetes for the idf diabetes atlas: estimates for the year 2013. (2015). *Diabetes research and clinical practice*, 109(3), 461–465. <Https://doi.org/10.1016/j.diabres.2015.05.037>
- Use of glycated haemoglobin (hba1c) in the diagnosis of diabetes mellitus abbreviated report of a who consultation. (2011).
- Warsidah. (2022). Analisis kadar air, abu, protein, lemak, dan karbohidrat pada kerang ale-ale segar dan fermentasi. *E-Jurnal Kimia Khatulistiwa*, 10(1), 26–34. <https://jurnal.untan.ac.id/index.php/jkkmipa/article/view/45022>
- Yenny safitri, i. N. (2018). Pengaruh pemberian sari pati bengkuang (pachyrhizus erosus) terhadap kadar glukosa darah pada penderita diabetes mellitus tipe ii usia 40-50 tahun di kelurahan bangkinang wilayah kerja puskesmas bangkinang kota tahun 2018 yenny safitri 1, ika nurhayati2.
- Yudiyanti, i., ronitawati, p., sa'pang, m., & widayati, r. S. (2023). Analisis kandungan energi dan zat gizi makro pada formula enteral non susu berbasis kacang merah (*phaseolus vulgaris*) untuk pasien diabetes mellitus tipe ii. *Jurnal sago gizi dan kesehatan*, 5(1), 209. <Https://doi.org/10.30867/gikes.v5i1.1283>

LAMPIRAN

Lampiran 1 Pelaksanaan Kegiatan Penelitian

Kegiatan	Tahun 2025					
	Maret	April	Mei	Juni	Juli	Agustus
Penyusunan proposal						
Penyusunan surat izin						
<i>Ethical clearance</i>						
Pembuatan makanan entral						
Uji kimia dan fisik						
Uji organoleptik						
Analisis data						
Penyusunan laporan penelitian						
Sidang hasil penelitian						

Lampiran 2 Ethical Clereance



**RUMAH SAKIT PANTI RAPIH
KOMITE ETIK DAN HUKUM RUMAH SAKIT (KEHRS)**

Jln. Cik Di Tiro 30 - Yogyakarta 55223 Telp. 0274 – 562233, 563333

**SUB KOMITE ETIK PENELITIAN KESEHATAN
RUMAH SAKIT PANTI RAPIH**

**KETERANGAN KELAIKAN ETIK
("ETHICAL CLEARANCE")
No. 115/SKEPK-KKE/VI/2025**

Sub Komite Etik Penelitian Kesehatan Rumah Sakit Panti Rapih, setelah mempelajari dengan seksama rancangan penelitian yang diusulkan:

The Health Research Ethical Sub Committee of Panti Rapih Hospital, after studying the proposed research design carefully :

"Pengaruh Perbandingan Tepung Kacang Merah dan Tepung Jagung terhadap Karakteristik Kimia dan Fisik Makanan Enteral Untuk Pasien Diabetes Mellitus"

Peneliti Utama	:	Rachel Mouryani
Principal Investigator	:	
Anggota Peneliti	:	
Investigator member	:	
Lokasi penelitian	:	Laboratorium Teknologi Pangan STIKes Panti Rapih Yogyakarta <i>Institute of Health Science Panti Rapih Yogyakarta Laboratory</i>
Location	:	
Unit/Lembaga	:	STIKes Panti Rapih
Institution	:	

Maka dengan ini menyatakan bahwa rencana penelitian tersebut telah memenuhi syarat atau dinyatakan laik etik untuk dilaksanakan.

Thus hereby declare that the research design has qualified and been approved for the implementation.

Demikian surat keterangan lolos kaji etik ini dibuat untuk diketahui dan dimaklumi oleh yang berkepentingan dan berlaku sejak tanggal 16 Juni 2025 sampai dengan 15 Juni 2026.

This ethical clearance is issued to be used appropriately and understood by all stakeholders and valid from 16 June 2025 until 15 June 2026.

Yogyakarta, 16 Juni 2025

Komite Etik dan Hukum Rumah Sakit

Maria Silvia Merry, M.Sc, Sp.MK

Ketua

Sub Komite Etik Penelitian Kesehatan
(SKEPK)

dr. Emilia Theresia, Sp.PA
Ketua

Catatan (Notes):

Kewajiban peneliti (*The obligations of researcher*):

- Menjaga kerahasiaan identitas subjek penelitian
Keeping the confidentiality of the research subject identity.
- Memberitahukan status penelitian apabila setelah masa berlakunya keterangan lolos kaji etik, penelitian masih belum selesai, atau ada perubahan protokol. Peneliti wajib mengajukan kembali permohonan kajian etik penelitian (amandemen protokol).
Informing about the research status if the research is not completed after passes the validity period of the ethical clearance, or there is a change in the protocol. The researchers must reapply the application for a research ethical review (amendment protocol).
- Melaporkan status penelitian apabila penelitian berhenti di tengah jalan, ada kejadian serius yang tidak diinginkan dan melaporkan pelaksanaan penelitian secara berkala.
Reporting the research status if it stops before it is completed, there are serious adverse events, and reporting the research conduct periodically.
- Peneliti tidak boleh melakukan tindakan apa pun pada subjek sebelum penelitian lolos kaji etik, ada surat izin penelitian dan memberikan informed consent kepada subjek penelitian.
Researchers should not take any action on the subject before the study passes an ethical review, having a research license, and provides informed consent to the research subjects.
- Setelah selesai penelitian, peneliti wajib memberikan laporan penelitian kepada Sub Komite Etik Penelitian Kesehatan RS Panti Rapih.
After completing the research, the researchers is obliged to provide a report to the Health Research Ethical Sub Committee of Panti Rapih Hospital.

4.3.1.1 Pembuatan Tepung Ikan Kembung

 <p>Pemilihan ikan kembung segar</p>	 <p>Ikan kembung fillet setelah dikukus</p>
 <p>Pengovenan ikan kembung yang sudah di suwir</p>	 <p>Tepung ikan kembung sudah jadi</p>
<h4>4.3.1.2 Persiapan Bahan Pembuatan Enteral</h4>	
 <p>Minyak Zaitun</p>	 <p>Maltodextrin</p>

 <p>Tepung kacang merah</p>	 <p>Tepung jagung</p>
<p>4.3.1.3 Hasil Pembuatan Enteral</p>	
 <p>Penyaringan setelah semua bahan di campur</p>	 <p>Hasil Enteral</p>
 <p>Hasil Enteral</p>	

Lampiran 4 Rekapitulasi Data Penelitian

Data Uji Kimia (Energi, Karbohidrat, Protein, Lemak, Serat Pangan, Kadar Air, Kadar Abu) dan Uji Fisik (Viskositas)

Lampiran 5 Hasil Analisis Data Statistik

SPSS Data Uji Kimia dan Fisik

Visible: 9 of 9 Variables

	Sample	Energi	Karbohidrat	Protein	Lemak	Serat	KadarAir	KadarAbu	Viskositas	var							
1	1	233.88	31.28	16.23	4.88	14.80	78.15	.89	2450.10								
2	1	223.58	28.95	16.65	4.48	14.58	79.08	.87	2702.90								
3	1	232.03	31.28	16.11	4.83	15.65	78.21	.90	1178.15								
4	2	251.33	35.08	13.43	6.50	10.08	77.24	.73	1104.40								
5	2	229.85	31.18	14.43	5.35	11.75	78.67	.77	646.80								
6	2	257.08	35.10	14.45	6.70	12.30	76.90	.83	591.90								
7	3	194.55	32.90	10.20	6.83	8.58	80.80	.73	254.30								
8	3	211.73	34.25	11.65	7.08	8.65	79.10	.77	1606.90								
9	3	212.38	38.65	11.45	1.98	9.28	78.71	.77	1621.25								
10																	
11																	
12																	
13																	
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16																	
17																	
18																	
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23																	

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Sample	Numeric	8	0	(1, E1)...	None	6	Right	Ordinal	Input	
2	Energi	Numeric	8	2	None	None	8	Right	Nominal	Input	
3	Karbohidrat	Numeric	8	2	None	None	8	Right	Nominal	Input	
4	Protein	Numeric	8	2	None	None	8	Right	Nominal	Input	
5	Lemak	Numeric	8	2	None	None	8	Right	Nominal	Input	
6	Serat	Numeric	8	2	None	None	8	Right	Nominal	Input	
7	KadarAir	Numeric	8	2	None	None	8	Right	Nominal	Input	
8	KadarAbu	Numeric	8	2	None	None	8	Right	Nominal	Input	
9	Viskositas	Numeric	8	2	None	None	8	Right	Nominal	Input	
10											
11											
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1. SPSS Data Uji Kimia Kadar Energi

Descriptives

	Sample	Statistic	Std. Error
Energi	E1	Mean	230,0967
		95% Confidence Interval for Lower Bound	216,0167
		Mean Upper Bound	244,1767
		5% Trimmed Mean	.
		Median	232,8300

	Variance	32,126	
	Std. Deviation	5,66797	
	Minimum	223,58	
	Maximum	233,88	
	Range	10,30	
	Interquartile Range	.	
	Skewness	-1,665	1,225
	Kurtosis	.	.
E2	Mean	246,0867	8,28629
	95% Confidence Interval for	Lower Bound	210,4337
	Mean	Upper Bound	281,7397
	5% Trimmed Mean	.	
	Median	251,3300	
	Variance	205,988	
	Std. Deviation	14,35227	
	Minimum	229,85	
	Maximum	257,08	
	Range	27,23	
	Interquartile Range	.	
	Skewness	-1,425	1,225
	Kurtosis	.	.
E3	Mean	206,2200	5,83802
	95% Confidence Interval for	Lower Bound	181,1010
	Mean	Upper Bound	231,3390
	5% Trimmed Mean	.	
	Median	211,7300	
	Variance	102,247	
	Std. Deviation	10,11174	
	Minimum	194,55	
	Maximum	212,38	
	Range	17,83	
	Interquartile Range	.	
	Skewness	-1,724	1,225
	Kurtosis	.	.

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk			
		Sample	Statistic	df	Sig.	Statistic	df	Sig.
Energi	E1	,352	3	.	,826	3	,	,177
	E2	,309	3	.	,900	3	,	,385
	E3	,374	3	.	,777	3	,	,061

a. Lilliefors Significance Correction

Descriptives

Energi

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
E1	3	230,0967	5,66797	3,27240	216,0167	244,1767	223,58	233,88
E2	3	246,0867	14,35227	8,28629	210,4337	281,7397	229,85	257,08
E3	3	206,2200	10,11174	5,83802	181,1010	231,3390	194,55	212,38
Total	9	227,4678	19,67183	6,55728	212,3467	242,5889	194,55	257,08

ANOVA

Energi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2415,126	2	1207,563	10,644	,011
Within Groups	680,722	6	113,454		
Total	3095,848	8			

Energi

Duncan^a

Sample	N	Subset for alpha = 0.05	
		1	2
E3	3	206,2200	

E1	3		230,0967
E2	3		246,0867
Sig.		1,000	,116

Means for groups in homogeneous subsets are displayed.

- a. Uses Harmonic Mean Sample Size = 3,000.

2. SPSS Data Uji Kimia Kadar Karbohidrat

Descriptives

		Sample	Statistic	Std. Error
Karbohidrat	E1	Mean	30,5033	,77667
		95% Confidence Interval for Mean	Lower Bound	27,1616
		Mean	Upper Bound	33,8451
		5% Trimmed Mean	.	.
		Median	31,2800	
		Variance	1,810	
		Std. Deviation	1,34523	
		Minimum	28,95	
		Maximum	31,28	
		Range	2,33	
		Interquartile Range	.	.
		Skewness	-1,732	1,225
		Kurtosis	.	.
		Mean	33,7867	1,30335
	E2	95% Confidence Interval for Mean	Lower Bound	28,1788
		Mean	Upper Bound	39,3945
		5% Trimmed Mean	.	.
		Median	35,0800	
		Variance	5,096	
		Std. Deviation	2,25746	
		Minimum	31,18	
		Maximum	35,10	
		Range	3,92	
		Interquartile Range	.	.
		Skewness	-1,732	1,225

Kurtosis			
E3	Mean	35,2667	1,73598
	95% Confidence Interval for Mean	Lower Bound	27,7974
		Upper Bound	42,7360
	5% Trimmed Mean	.	.
	Median	34,2500	.
	Variance	9,041	.
	Std. Deviation	3,00680	.
	Minimum	32,90	.
	Maximum	38,65	.
	Range	5,75	.
	Interquartile Range	.	.
	Skewness	1,348	1,225
	Kurtosis	.	.

Tests of Normality

	Sample	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Karbohidrat	E1	,385	3	.	,750	3	,000
	E2	,383	3	.	,754	3	,008
	E3	,299	3	.	,914	3	,432

a. Lilliefors Significance Correction

Descriptives Karbohidrat

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
E1	3	30,5033	1,34523	,77667	27,1616	33,8451	28,95	31,28
E2	3	33,7867	2,25746	1,30335	28,1788	39,3945	31,18	35,10
E3	3	35,2667	3,00680	1,73598	27,7974	42,7360	32,90	38,65
Total	9	33,1856	2,90588	,96863	30,9519	35,4192	28,95	38,65

Ranks

	Sample	N	Mean Rank
Karbohidrat	E1	3	2,67
	E2	3	5,67

	E3	3	6,67
Total		9	

Test Statistics^{a,b}

Karbhidrat	
Chi-Square	3,496
df	2
Asymp.	,174
Sig.	

a. Kruskal Wallis Test

b. Grouping Variable:
Sample

3. SPSS Data Uji Kimia Kadar Protein

Descriptives

		Sample	Statistic	Std. Error
Protein	E1	Mean	16,3300	,16371
		95% Confidence Interval for Mean	Lower Bound	15,6256
		Mean	Upper Bound	17,0344
		5% Trimmed Mean		,
		Median	16,2300	
		Variance	,080	
		Std. Deviation	,28355	
		Minimum	16,11	
		Maximum	16,65	
		Range	,54	
		Interquartile Range		,
		Skewness	1,390	1,225
		Kurtosis	,	,
E2	E2	Mean	14,1033	,33672
		95% Confidence Interval for Mean	Lower Bound	12,6546
		Mean	Upper Bound	15,5521
		5% Trimmed Mean		,
		Median	14,4300	
		Variance	,340	
		Std. Deviation	,58321	
		Minimum	13,43	

	Maximum	14,45	
	Range	1,02	
	Interquartile Range	.	
	Skewness	-1,730	1,225
	Kurtosis	.	.
E3	Mean	11,1000	,45369
	95% Confidence Interval for Mean	Lower Bound	9,1479
	Mean	Upper Bound	13,0521
	5% Trimmed Mean	.	
	Median	11,4500	
	Variance	,618	
	Std. Deviation	,78581	
	Minimum	10,20	
	Maximum	11,65	
	Range	1,45	
	Interquartile Range	.	
	Skewness	-1,607	1,225
	Kurtosis	.	.

Descriptives

Protein

N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
E1	16,3300	,28355	,16371	15,6256	17,0344	16,11	16,65
E2	14,1033	,58321	,33672	12,6546	15,5521	13,43	14,45
E3	11,1000	,78581	,45369	9,1479	13,0521	10,20	11,65
Total	13,8444	2,32935	,77645	12,0539	15,6349	10,20	16,65

Ranks

	Sample	N	Mean Rank
Protein	E1	3	8,00

E2	3	5,00
E3	3	2,00
Total	9	

Test Statistics^{a,b}

	Protein
Chi-Square	7,200
df	2
Asymp. Sig.	,027

a. Kruskal Wallis Test

b. Grouping Variable:

Sample

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Protein is the same across categories of Sample. Kruskal-Wallis Test	Independent Samples	,027	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Ranks

	Sample	N	Mean Rank	Sum of Ranks
Protein	E1	3	5,00	15,00
	E2	3	2,00	6,00
	Total	6		

Test Statistics^a

	Protein
Mann-Whitney U	,000
Wilcoxon W	6,000

Z	-1,964
Asymp. Sig. (2-tailed)	,050
Exact Sig. [2*(1-tailed Sig.)]	,100 ^b

a. Grouping Variable: Sample

b. Not corrected for ties.

Ranks

	Sample	N	Mean Rank	Sum of Ranks
Protein	E1	3	5,00	15,00
	E3	3	2,00	6,00
	Total	6		

Test Statistics^a

	Protein
Mann-Whitney U	,000
Wilcoxon W	6,000
Z	-1,964
Asymp. Sig. (2-tailed)	,050
Exact Sig. [2*(1-tailed Sig.)]	,100 ^b

a. Grouping Variable: Sample

b. Not corrected for ties.

Ranks

	Sample	N	Mean Rank	Sum of Ranks
Protein	E2	3	5,00	15,00
	E3	3	2,00	6,00
	Total	6		

Test Statistics^a

	Protein
Mann-Whitney U	,000
Wilcoxon W	6,000
Z	-1,964
Asymp. Sig. (2-tailed)	,050

Exact Sig. [2*(1-tailed
Sig.)] ,100^b

- a. Grouping Variable: Sample
b. Not corrected for ties.

4. SPSS Data Uji Kimia Kadar Lemak

Descriptives

		Sample	Statistic	Std. Error
Lemak	E1	Mean	4,7300	,12583
		95% Confidence Interval for Mean	Lower Bound	4,1886
			Upper Bound	5,2714
		5% Trimmed Mean	.	.
		Median	4,8300	
		Variance	,047	
		Std. Deviation	,21794	
		Minimum	4,48	
		Maximum	4,88	
		Range	,40	
		Interquartile Range	.	.
		Skewness	-1,630	1,225
		Kurtosis	.	.
	E2	Mean	6,1833	,42065
		95% Confidence Interval for Mean	Lower Bound	4,3734
			Upper Bound	7,9932
		5% Trimmed Mean	.	.
		Median	6,5000	
		Variance	,531	
		Std. Deviation	,72858	
		Minimum	5,35	
		Maximum	6,70	
		Range	,35	
		Interquartile Range	.	.
		Skewness	-1,586	1,225
		Kurtosis	.	.
E3		Mean	5,2967	1,65990
		95% Confidence Interval for Mean	Lower Bound	-1,8453

	Upper Bound	12,4387	
5% Trimmed Mean	.		
Median	6,8300		
Variance	8,266		
Std. Deviation	2,87504		
Minimum	1,98		
Maximum	7,08		
Range	5,10		
Interquartile Range	.		
Skewness	-1,717	1,225	
Kurtosis	.	.	

Tests of Normality

	Sample	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Lemak	E1	,343	3	.	,842	3	,220
	E2	,335	3	.	,858	3	,263
	E3	,370	3	.	,787	3	,083

a. Lilliefors Significance Correction

Descriptives

Lemak

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
E1	3	4,7300	,21794	,12583	4,1886	5,2714	4,48	4,88
E2	3	6,1833	,72858	,42065	4,3734	7,9932	5,35	6,70
E3	3	5,2967	2,87504	1,65990	-1,8453	12,438	1,98	7,08
Total	9	5,4033	1,61662	,53887	4,1607	6,6460	1,98	7,08

ANOVA

Lemak

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3,219	2	1,610	,546	,606
Within Groups	17,688	6	2,948		
Total	20,908	8			

**Lemak
Duncan^a**

		Subset for alpha = 0.05
Sample	N	1
E1	3	4,7300
E3	3	5,2967
E2	3	6,1833
Sig.		,354

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

5. SPSS Data Uji Kimia Kadar Serat Pangan

Descriptives

Sample			Statistic	Std. Error
Serat	E1	Mean	15,0100	,32624
		95% Confidence Interval for Mean	Lower Bound	13,6063
			Upper Bound	16,4137
		5% Trimmed Mean	.	
		Median	14,8000	
		Variance	,319	
		Std. Deviation	,56507	
		Minimum	14,58	
		Maximum	15,65	
		Range	1,07	
		Interquartile Range	.	
		Skewness	1,441	1,225
		Kurtosis	.	.
E2	E2	Mean	11,3767	,66749
		95% Confidence Interval for Mean	Lower Bound	8,5047
			Upper Bound	14,2486
		5% Trimmed Mean	.	
		Median	11,7500	
		Variance	1,337	
		Std. Deviation	1,15613	
		Minimum	10,08	

	Maximum	12,30	
	Range	2,22	
	Interquartile Range	.	
	Skewness	-1,302	1,225
	Kurtosis	.	.
E3	Mean	8,8367	,22259
	95% Confidence Interval for Mean	Lower Bound	7,8790
		Upper Bound	9,7944
	5% Trimmed Mean	.	
	Median	8,6500	
	Variance	,	149
	Std. Deviation	,	38553
	Minimum	8,58	
	Maximum	9,28	
	Range	,	70
	Interquartile Range	.	
	Skewness	1,668	1,225
	Kurtosis	.	.

Tests of Normality

	Sample	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Serat	E1	,312	3	.	,896	3	,374
	E2	,293	3	.	,922	3	,459
	E3	,353	3	.	,824	3	,174

a. Lilliefors Significance Correction

Descriptives

Serat

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
	E1	13	15,0100	,56507	,32624	13,6063	16,4137	14,58	15,65

E2	3	11,3767	1,15613	,66749	8,5047	14,2486	10,08	12,30
E3	3	8,8367	,38553	,22259	7,8790	9,7944	8,58	9,28
Total	9	11,7411	2,76974	,92325	9,6121	13,8701	8,58	15,65

ANOVA

Serat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	57,763	2	28,881	48,014	,000
Within Groups	3,609	6	,602		
Total	61,372	8			

Serat

Duncan^a

Sample	N	Subset for alpha = 0.05		
		1	2	3
E3	3	8,8367		
E2	3		11,3767	
E1	3			15,0100
Sig.		1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

6. SPSS Data Uji Kimia Kadar Air

Descriptives

	Sample	Statistic	Std. Error
KadarAir	E1	Mean	,74293
		95% Confidence Interval for Lower Bound	193,0201
		Mean Upper Bound	199,4132
		5% Trimmed Mean	.
		Median	195,5500

	Variance	1,656	
	Std. Deviation	1,28679	
	Minimum	195,40	
	Maximum	197,70	
	Range	2,30	
	Interquartile Range	.	
	Skewness	1,706	1,225
	Kurtosis	.	.
E2	Mean	193,7767	1,17419
	95% Confidence Interval for	Lower Bound	188,7246
	Mean	Upper Bound	198,8288
	5% Trimmed Mean	.	
	Median	193,1500	
	Variance	4,136	
	Std. Deviation	2,03375	
	Minimum	192,13	
	Maximum	196,05	
	Range	3,92	
	Interquartile Range	.	
	Skewness	1,255	1,225
	Kurtosis	.	.
E3	Mean	198,9933	1,57867
	95% Confidence Interval for	Lower Bound	192,2008
	Mean	Upper Bound	205,7858
	5% Trimmed Mean	.	
	Median	198,1500	
	Variance	7,477	
	Std. Deviation	2,73434	
	Minimum	196,78	
	Maximum	202,05	
	Range	5,27	
	Interquartile Range	.	
	Skewness	1,256	1,225
	Kurtosis	.	.

Tests of Normality

	Sample	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Kadar	E1	,364	3	.	,799	3	,111
Air	E2	,288	3	.	,929	3	,484
	E3	,288	3	.	,929	3	,484

a. Lilliefors Significance Correction

Descriptives

KadarAir

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
E1	3	196,2167	1,28679	,74293	193,0201	199,4132	195,40	197,70
E2	3	193,7767	2,03375	1,17419	188,7246	198,8288	192,13	196,05
E3	3	198,9933	2,73434	1,57867	192,2008	205,7858	196,78	202,05
Total	9	196,3289	2,90289	,96763	194,0975	198,5602	192,13	202,05

ANOVA

KadarAir

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40,877	2	20,439	4,621	,061
Within Groups	26,537	6	4,423		
Total	67,414	8			

KadarAir

Duncan^a

Sam ple	N	Subset for alpha = 0.05	
		1	2
E2	3	193,77	
		67	
E1	3	196,21	196,21
		67	67
E3	3		198,99
			33
Sig.		,205	,157

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

7. SPSS Data Uji Kimia Kadar Abu

Descriptives

		Sample	Statistic	Std. Error
KadarAbu	E1	Mean	,8867	,00882
		95% Confidence Interval for Mean	Lower Bound ,8487	
			Upper Bound ,9246	
		5% Trimmed Mean	,	
		Median	,8900	
		Variance	,000	
		Std. Deviation	,01528	
		Minimum	,87	
		Maximum	,90	
		Range	,03	
		Interquartile Range	,	
		Skewness	-,935	1,225
		Kurtosis	,	,
	E2	Mean	,7767	,02906
		Lower Bound	,6516	

	95% Confidence Interval for Mean	Upper Bound	,9017	
	5% Trimmed Mean		,	
	Median		,7700	
	Variance		,003	
	Std. Deviation		,05033	
	Minimum		,73	
	Maximum		,83	
	Range		,10	
	Interquartile Range		,	
	Skewness		,586	1,225
	Kurtosis		,	,
E3	Mean		,7567	,01333
	95% Confidence Interval for Mean	Lower Bound	,6993	
		Upper Bound	,8140	
	5% Trimmed Mean		,	
	Median		,7700	
	Variance		,001	
	Std. Deviation		,02309	
	Minimum		,73	
	Maximum		,77	
	Range		,04	
	Interquartile Range		,	
	Skewness		-1,732	1,225
	Kurtosis		,	,

Tests of Normality

	Sample	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
KadarAbu	E1	,253	3	,	,964	3	,637
	E2	,219	3	,	,987	3	,780
	E3	,385	3	,	,750	3	,000

a. Lilliefors Significance Correction

Ranks

Sample	N	Mean Rank
KadarAbu E1	3	8,00
E2	3	3,83
E3	3	3,17
Total	9	

Test Statistics^{a,b}

	KadarAbu
Chi-Square	5,728
df	2
Asymp. Sig.	,057

a. Kruskal Wallis Test

b. Grouping Variable:

Sample

8. SPSS Data Uji Fisik Viskositas**Descriptives**

	Sample	Statistic	Std. Error
Viskositas	E1	Mean	2110,3833
		95% Confidence Interval for Mean	
		Lower Bound	80,4138
		Upper Bound	4140,3528
		5% Trimmed Mean	.
		Median	2450,1000
		Variance	667771,201
		Std. Deviation	817,17269
		Minimum	1178,15
		Maximum	2702,90
		Range	1524,75
		Interquartile Range	.

	Skewness	-1,547	1,225
	Kurtosis	.	.
E2	Mean	781,0333	162,45820
	95% Confidence Interval for Mean	Lower Bound Upper Bound	82,0321 1480,0346
	5% Trimmed Mean	.	.
	Median	646,8000	
	Variance	79178,003	
	Std. Deviation	281,38586	
	Minimum	591,90	
	Maximum	1104,40	
	Range	512,50	
	Interquartile Range	.	.
	Skewness	1,658	1,225
	Kurtosis	.	.
E3	Mean	1160,8167	453,27726
	95% Confidence Interval for Mean	Lower Bound Upper Bound	-789,4780 3111,1113
	5% Trimmed Mean	.	.
	Median	1606,9000	
	Variance	616380,831	
	Std. Deviation	785,09925	
	Minimum	254,30	
	Maximum	1621,25	
	Range	1366,95	
	Interquartile Range	.	.
	Skewness	-1,731	1,225
	Kurtosis	.	.

Tests of Normality

	Sample	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Viskositas	E1	,328	3	.	,870	3	,297
	E2	,350	3	.	,829	3	,187

E3	,382	3	.	,758	3	,017
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a. Lilliefors Significance Correction

Ranks

	Sample	N	Mean Rank
Viskositas	E1	3	7,33
	E2	3	3,00
	E3	3	4,67
	Total	9	

Test Statistics^{a,b}

	Viskositas
Chi-Square	3,822
df	2
Asymp. Sig.	,148

a. Kruskal Wallis Test

b. Grouping Variable:

Sample

Lampiran 6 Bukti Konsultasi dengan Pembimbing 1 dan 2



**LEMBAR KONSULTASI
PROPOSAL PENELITIAN**

Judul Penelitian : Pengaruh perbandingan tempe, kacang merah dan tempe jagung terhadap formulasi makanan enteral untuk pasien diabetes mellitus.

Pembimbing : Ibu Maria Amrizati dan Ibu Veronica Ima

No	Hari/Tanggal	Materi Konsultasi	Saran Pembimbing	Tanda Tangan Pembimbing
1	27 maret 2025	review BAB 123	isikarbohidrat di pengkar, formulasi di berangkan	✓/✓
2	10 april 2025	review BAB 123	formulasi di kuil lagi	✓/✓
3	21 april 2025	review BAB 123 + ACC	gas ACC	✓/✓
4	22 april 2025	review BAB 123	perbaikan tujuan penelitian, temukan kacang merah dan jagung, rangkai medis khusus di bab 2 tambahkan	✓/✓ —lm—
5	29 april 2025	review BAB 123 + ACC	perbandingan penelitian formulasi enteral (chartal) pastikan masuk LB, + karakteristik formulasi	acc ✓/✓ —lm—



LEMBAR KONSULTASI LAPORAN HASIL PENELITIAN

Judul Penelitian : Pengaruh perbandingan tepung kanang merah dan terung legung terhadap kualitas risiko KIMIA dan FISIK makaroni entral untuk pasien diabetes mellitus

Pembimbing : Ibu Maria Amriyati dan Ibu Veronika Irma

No	Hari/ Tanggal	Materi Konsultasi	Saran Pembimbing	Tanda Tangan Pembimbing
1	Rabu, 26 Juli 2025	review BAB 4	koreksi uji spss	
2	Senin, 28 Juli, 2025	review BAB 4	koreksi uji spss dan kalimat tercu	
3.	Jumat, 1 Agus 2025	review BAB 4	koreksi penulisan.	
4	2025, 29 Juli 2025	review BAB 4	ACC	
5.	Rabu, 6 Agustus 2025	review BAB 1,2,3,4	ACC.	

Lampiran 7 Bukti Hasil Turnitin

Rachel Mouryani_Prodi Sarjana Gizi.docx

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