

## DAFTAR PUSTAKA

- Adias TC, Bungudu UG, Osaro E, *et al.* 2018. Effect of Storage on Osmotic Fragility in CPDA-1 Stored Blood in Sokoto, Northwestern Nigeria.
- Almizraq RDRJ, Holovati, J. & Acker, J., 2013. Storage of Red Blood Cell Affects Membrane Composition, Microvesiculation, and In Vitro Quality. *The Journal of AABB*, 53(10), pp. 2258-2267.
- Arif SH, Neha Yadav, Suhailur Rehman, *et al.* 2017. Study of Hemolysis During Storage of Blood in the Blood Bank of a Tertiary Health Care Centre. *Indian J Hematology Blood Transfusion*. Dec; 33(4): 598–602.
- Arsyani T, Yaswir R, Rofinda ZD, 2018. Perbandingan Kadar Kalium Packed Red Cell Berdasarkan Lama Penyimpanan Di Bank Darah RSUP Dr. M. Djamil Padang. *Jurnal Kesehatan Andalas*.
- Astuti dan Laksono. 2013. *Keamanan Darah di Indonesia*. Surabaya. Health Advocacy
- Badan POM RI No 10, 2017. Peraturan Kepala Badan Pengawas Obat dan Makanan Republik Indonesia Nomer 10 Tahun 2017 Tentang Penerapan Pedoman Cara Pembuatan Obat Yang Baik di Unit Transfusi Darah dan Pusat Plasmaferesis.
- BCSU. 2015. *HandBook On Component Preparation for BCSU*. Ministry of Health and Family Welfare, Government of India.
- Brugue CB, Ferreira RRF, Sanchez IM, *et al.* 2018. In vitro quality control analysis after processing and during storage of feline packed red blood cells units. *BMC Veterinary Research* (2018) 14:141
- Crestani C, Stefani A, Carminato A, *et al* 2017. In vitro Assessment of quality of citrate-phosphate-dextrose-adenin-1 preserved feline blood collected by a commercial closed system. *Journal of Veterinary Internal Medicine*.
- Daniel B, Janet KSL, Mark TG. 2012. Storage Lesion. Role of Red Cell Breakdown. *National Institute of Health*, 51(4), pp. 844-851
- Elfany, 2018. Perbandingan lama inkubasi 30 menit, 60 menit, 120 menit pada pemeriksaan Fragilitas Osmotik. *Poltekkes Kemenkes Bandung Jurusan Analis Kesehatan*.
- European Directorate for the Quality Medicines and HealthCare, 2017. *Giude To The Preparation, Use and Quality Asurance Of Blood Components*, 19 Edition, France.

- Gkoumassi E, Dijkstra-Tiekstra MJ, Hoentjen D, *et al.* 2012. Hemolysis of red blood cells during processing and storage: Hemolysis During Processing And Storage. *Transfusion (Paris)*. 2012;52:489–492.
- Hervig T, Kaada S, Seghatchian J. 2014. Storage and handling of blood components – perspectives. *Transfusion and Apheresis Science* 51 (2014) 103–106
- Isti R, Rofinda ZD, Husni. 2018. Gambaran Morfologi Eritrosit Packed Red Cell Berdasarkan Waktu Penyimpanan di Bank Darah RSUP Dr. M Djamil Padang. *Jurnal Kesehatan Andalas*, 7(Supplement 2), 17.
- Krister J, Lindstrom M, Alhabshi M, *et al.* 2021. Estimation of Blood Loss in Oral and Maxillofacial Surgery by Measurements of Low Haemoglobin Level in Mixtures of Blood, Saliva and Saline : a Laboratory Study. *Journal Of Oral and Maxillofacial Research*.
- Kiswari R, 2014. *Hematologi dan Transfusi*. 2 ed. Jakarta:Erlangga
- Lagerberg JW, Herbert K., Pieter FVDM, *et al* 2017. Prevention of Red Cell Storage Lession. *SIMTI Service*, pp. 456-460
- Leo MG, Anneke B. 2008. Effects of Storage of Red Cells. *Leiden: Transfusion Medicine and Hemotherapy*, 35(5), pp. 359-367.
- Maharani dan Noviar. 2018. *Imunohematologi dan Bank Darah*. Kementerian Kesehatan Republik Indonesia
- Makroo R, Raina V, Bhatia A, *et al.* 2011. Evaluation of the red cell hemolysis in packed red cells during processing and storage. *Asian J Transfus Sci*. 2011;5:15.
- Muller MM, Gaisen C, Zacharowski K, *et al.* 2015. Transfusion of packed red cells indications, triggers, and adverse event.
- Permenkes, 2015. Peraturan Menteri Kesehatan Republik Indonesia Nomor 91 Tahun 2015 Tentang Standar Pelayanan Transfusi Darah. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Pesalmen S. 2019. Pengaruh Waktu Simpan Packed Red Cells (PRC) Terhadap Perubahan Kadar Hemoglobin, Hematokrit, dan Glukosa Plasma Di RSUP H. Adam Malik. Medan, Indonesia
- Rahman A. & Nur A. 2018. Peramalan Jumlah Permintaan Darah di Kota Makassar (Studi

- Kasus: Unit Donor Darah (UDD) Palang Merah Indonesia (PMI) Kota Makassar, Makassar: UIN Alaudin Makassar Repository.
- Sawadogo S, Moindze A, Nebie K, *et al.* 2021. Evaluation of hemolysis during storage of red blood cell concentrates processed by centrifugation and settling method by simple gravity in Burkina Faso. *Hematologi and Transfusion Internasional Journal*. Volume 9 Issue 3 - 2021
- Sparrow RL. 2012. Time to Revisit Red Blood Cell Additive Solutions and Storage Conditions: A Role for "Omics" Analyses. *Blood Transfusion*, Volume 10, pp. 7-11.
- Suminingsih. 2017. Pengaruh Lama Simpan Kantong Darah Donor pada Suhu 2-6 °C terhadap Kadar Hemoglobin Sebelum Transfusi Darah.
- Supadmi FRS, Artini D, Mumpuni N. 2021. Measurement of Pack Red Cells (PRC) Blood Components During Processing and Storage. *Proceedings of the International Conference on Health and Medical Sciences (AHMS 2020)*. *Advances in Health Sciences Research*, volume 34
- Tiara S. 2017. Hubungan lama penyimpanan darah donor komponen Packed Red Cells terhadap nilai Fragilitas Osmotik. Poltekkes Kemenkes Bandung Jurusan Analisis Kesehatan.
- Vassilis L. Tzounakas<sup>1</sup>, Alkmini T. Anastasiadi, *et al.* 2017. Temperature-dependent haemolytic propensity of CPDA-1 stored red blood cells vs whole blood - Red cell fragility as donor signature on blood units. *Blood Transfus* 2017; 15: 447-55 DOI 10.2450/2017.0332-16
- Viveronika, Aldonna E. 2017. Pengaruh Transfusi Packed Red Cell dan Whole Blood terhadap Kadar Hemoglobin.
- Weinstein S. 2006. *Plumer,s Principle & Practice of Intravenous Therapy*. 8 ed. Philadelphia: Lippincot Williams & Williams.
- World Health Organization (WHO). 2013. Standard Requirements for Storage, Transport, Expiry of Blood and BloodComponents; in *National Standard for Blood Transfusion service*, 1th Ed, WHO,Thimphu Bhutan.

## LAMPIRAN I. TABEL LAMPIRAN

Tabel lampiran 1. Hasil pemeriksaan fragilitas osmotik eritrosit terkait dengan tingkat

No Kantong	Hemolisis		Pemeriksaan			Hemolisis %
	Suhu °C	Hari	Hemoglobin	Hematokrit	Plasma Hb	
			g/dL	%	g/dL	
3988337A	2-6	0	20,5	62,2	0,03	0,055
S4017616A			20,3	66,4	0,05	0,082
2F115278A			19,0	59,4	0,03	0,064
2E526264A	20-24	0	20,0	61,4	0,08	0,154
2F115208A			19,5	62,2	0,05	0,096
2F115198A			21,3	64,1	0,06	0,101
3988337A	2-6	7	20,2	62,7	0,06	0,110
S4017616A			19,9	68,1	0,10	0,160
2F115278A			19,1	61,0	0,07	0,142
2E526264A	20-24	7	20,2	63,8	0,11	0,197
2F115208A			19,8	66,2	0,09	0,153
2F115198A			20,0	61,8	0,10	0,191
3988337A	2-6	14	19,2	62,3	0,08	0,157
S4017616A			20,2	68,4	0,13	0,203
2F115278A			18,9	60,5	0,10	0,208
2E526264A	20-24	14	19,8	64,5	0,14	0,251
2F115208A			20,2	67,9	0,15	0,238
2F115198A			20,6	65,3	0,16	0,269
3988337A	2-6	21	19,7	64,4	0,12	0,216
S4017616A			19,5	68,5	0,16	0,258
2F115278A			18,8	59,9	0,14	0,298
2E526264A	20-24	21	21,5	71,7	0,21	0,276
2F115208A			21,4	72,8	0,20	0,254
2F115198A			20,3	65,1	0,22	0,378
3988337A	2-6	28	20,1	65,5	0,18	0,308
S4017616A			19,8	70,6	0,23	0,341
2F115278A			19,5	62,7	0,18	0,344
2E526264A	20-24	28	20,5	68,8	0,23	0,350
2F115208A			19,9	67,7	0,24	0,389
2F115198A			21,5	69,5	0,26	0,368
3988337A	2-6	35	20,6	67,7	0,28	0,439
S4017616A			19,9	73,4	0,31	0,414
2F115278A			18,9	61,3	0,24	0,491
2E526264A	20-24	35	20,6	70,9	0,40	0,565
2F115208A			20,3	70,3	0,43	0,629
2F115198A			21,5	69,4	0,45	0,640

Tabel lampiran 2. Uji statistik deskriptif untuk melihat peningkatan nilai rata-rata tingkat hemolisis pada komponen darah PRC selama penyimpanan

### Descriptive Statistics

Dependent Variable: Hemolisis

Suhu	Hari	Mean	Std. Deviation	N
2-6	0	.06700	.013748	3
	7	.13733	.025325	3
	14	.18933	.028113	3
	21	.25733	.041004	3
	28	.33100	.019975	3
	35	.44800	.039281	3
	Total	.23833	.131749	18
	20-24	0	.11700	.032140
7		.18033	.023861	3
14		.25267	.015567	3
21		.30267	.066161	3
28		.36900	.019519	3
35		.61133	.040501	3
Total		.30550	.166483	18
Total		0	.09200	.035197
	7	.15883	.032233	6
	14	.22100	.040204	6
	21	.28000	.055136	6
	28	.35000	.027298	6
	35	.52967	.096315	6
	Total	.27192	.151833	36

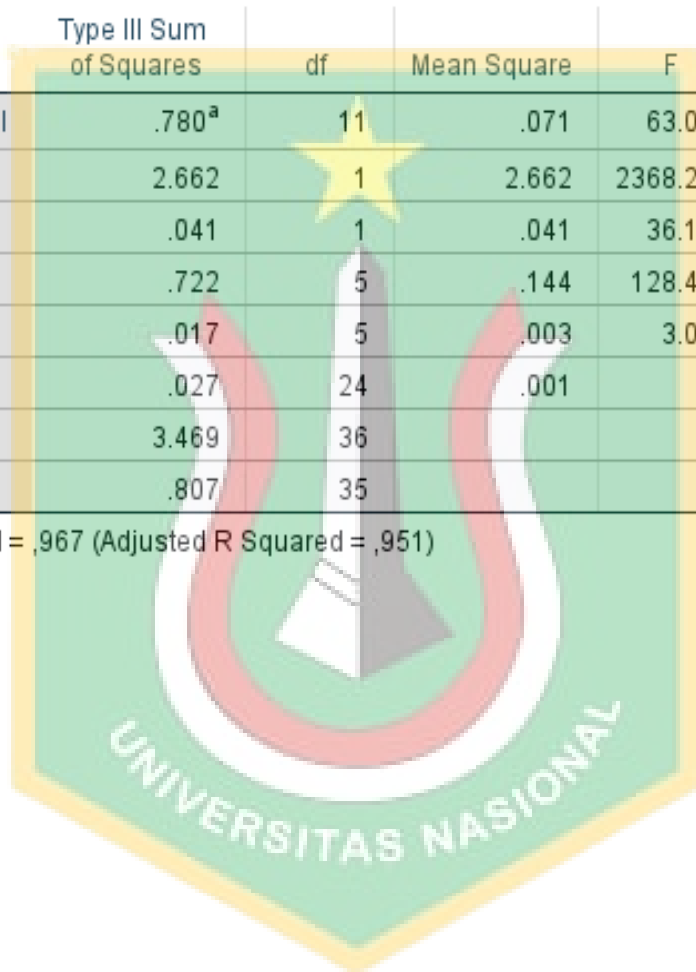
Tabel lampiran 3. Uji Anova komponen darah PRC terhadap suhu pengolahan, lama penyimpanan, dan tingkat hemolisis.

### Tests of Between-Subjects Effects

Dependent Variable: Hemolisis

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.780 <sup>a</sup>	11	.071	63.081	<,001
Intercept	2.662	1	2.662	2368.260	<,001
Suhu	.041	1	.041	36.125	<,001
Hari	.722	5	.144	128.492	<,001
Suhu * Hari	.017	5	.003	3.061	.028
Error	.027	24	.001		
Total	3.469	36			
Corrected Total	.807	35			

a. R Squared = ,967 (Adjusted R Squared = ,951)



Tabel lampiran 2. Uji lanjutan *Post Hoc* Anova

**Multiple Comparisons**

Dependent Variable: Hemolisis  
LSD

(I) Hari	(J) Hari	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	7	-.06683*	.019356	.002	-.10678	-.02688
	14	-.12900*	.019356	<.001	-.16895	-.08905
	21	-.18800*	.019356	<.001	-.22795	-.14805
	28	-.25800*	.019356	<.001	-.29795	-.21805
	35	-.43767*	.019356	<.001	-.47762	-.39772
7	0	.06683*	.019356	.002	.02688	.10678
	14	-.06217*	.019356	.004	-.10212	-.02222
	21	-.12117*	.019356	<.001	-.16112	-.08122
	28	-.19117*	.019356	<.001	-.23112	-.15122
	35	-.37083*	.019356	<.001	-.41078	-.33088
14	0	.12900*	.019356	<.001	.08905	.16895
	7	.06217*	.019356	.004	.02222	.10212
	21	-.05900*	.019356	.006	-.09895	-.01905
	28	-.12900*	.019356	<.001	-.16895	-.08905
	35	-.30867*	.019356	<.001	-.34862	-.26872
21	0	.18800*	.019356	<.001	.14805	.22795
	7	.12117*	.019356	<.001	.08122	.16112
	14	.05900*	.019356	.006	.01905	.09895
	28	-.07000*	.019356	.001	-.10995	-.03005
	35	-.24967*	.019356	<.001	-.28962	-.20972
28	0	.25800*	.019356	<.001	.21805	.29795
	7	.19117*	.019356	<.001	.15122	.23112
	14	.12900*	.019356	<.001	.08905	.16895
	21	.07000*	.019356	.001	.03005	.10995
	35	-.17967*	.019356	<.001	-.21962	-.13972
35	0	.43767*	.019356	<.001	.39772	.47762
	7	.37083*	.019356	<.001	.33088	.41078
	14	.30867*	.019356	<.001	.26872	.34862
	21	.24967*	.019356	<.001	.20972	.28962
	28	.17967*	.019356	<.001	.13972	.21962

Based on observed means.

The error term is Mean Square(Error) = ,001.

\*. The mean difference is significant at the ,05 level.



## LAMPIRAN II. SURAT IZIN PENELITIAN

Gambar lampiran 1. Surat Izin Penelitian



Nomer Lampiran Perihal : 0197/013/SIP/UTD/XI/2022  
: -  
: Izin Penelitian

Bogor, 14 November 2022  
Kepada  
Yth. Dekan Fakultas Biologi  
Universitas Nasional  
Di  
TEMPAT

Dengan hormat,

Menindaklanjuti surat dari Fakultas Biologi Universitas Nasional, Nomor 439/DEK.BIO/1.1b/XI/2022 perihal permohonan izin penelitian dalam rangka penulisan Skripsi Sarjana, terkait hal tersebut pada prinsipnya kami tidak keberatan dan dapat menerima mahasiswa yaitu

Nama : Ali Firdawansyah  
No. Pokok : 183112620120119  
Judul Penelitian : Fragilitas Osmotik Eritrosit Pada Komponen *Packed Red Cell* Dengan Suhu Pengolahan Yang Berbeda Selama Masa Penyimpanan.

Untuk Melaksanakan penelitian di UTD PMI Kabupaten Bogor

Namun, sebelum pelaksanaan penelitian tersebut, kami persilahkan mahasiswa sebagaimana tersebut diatas untuk menghubungi Sdr. Nyai Mulyanah, selaku Kepala Biro Umum PMI Kabupaten Bogor, di nomer Telepon. 021 87903021, atau No. Hp. 085780307700

Demikian hal ini kami sampaikan, atas perhatiannya ucapkan terima kasih.

PALANG MERAH INDONESIA  
UTD KABUPATEN BOGOR  
Kepala,

  
dr. DEDE AGUNG PRIATNA, MKM

Unit Transfusi Darah Kabupate Bogor Jl. KSR. Dadi Kusmayadi Kel. Tengah - Cibinong Kab. Bogor  
Telp./Fax : +62 21 87903021 Cibinong 16914 Bogor Email : uddpmikab.bogor@yahoo.co.id



# TA- ALI BIOMEDIK

## ORIGINALITY REPORT

24%

SIMILARITY INDEX

20%

INTERNET SOURCES

5%

PUBLICATIONS

11%

STUDENT PAPERS

## PRIMARY SOURCES

1	Submitted to Universitas Nasional Student Paper	5%
2	docplayer.info Internet Source	5%
3	r2kn.litbang.kemkes.go.id Internet Source	2%
4	repository.unas.ac.id Internet Source	1%
5	elearning.medistra.ac.id Internet Source	1%
6	hasananalisis.blogspot.com Internet Source	1%
7	joevha.blogspot.com Internet Source	1%
8	repository.stikeshb.ac.id Internet Source	1%
9	repository.ipb.ac.id Internet Source	1%

10 [ppjp.ulm.ac.id](http://ppjp.ulm.ac.id) Internet Source 1 %

---

11 [perpustakaan.poltekkesbdg.info](http://perpustakaan.poltekkesbdg.info) Internet Source 1 %

---

12 [repository.unimus.ac.id](http://repository.unimus.ac.id) Internet Source 1 %

---

13 Zhahrina Fauziyah, Eem Hayati, Betty Nurhayati, Nina Marliana. "STABILITAS PRC DALAM LARUTAN ALSEVER BUATAN TERHADAP MORFOLOGI ERITROSIT DAN FRAGILITAS OSMOTIK", Jurnal Riset Kesehatan Poltekkes Depkes Bandung, 2019  
Publication 1 %

---

14 [www.coursehero.com](http://www.coursehero.com) Internet Source 1 %

---

15 [idoc.pub](http://idoc.pub) Internet Source 1 %

---

16 Joni Tandi, Heru Khairul Muttaqin, Kiki Rizki Handayani, Sri Mulyani, Recky Patala. "Uji Potensi Metabolit Sekunder Ekstrak Kulit Buah Petai (*Parkia speciosa* Hassk) terhadap Kadar Kreatinin dan Ureum Tikus Secara Spektrofotometri UV-Vis", KOVALEN: Jurnal Riset Kimia, 2020  
Publication 1 %

---

17 [perpustakaan.poltekkes-malang.ac.id](http://perpustakaan.poltekkes-malang.ac.id)

---

Exclude quotes On

Exclude matches < 1%

Exclude bibliography On

