DAFTAR PUSTAKA

Abustam, E dan H.M.Ali. 2010. Kemampuan mengikat air (*Water Holding Capacity*) dan daya putus daging sapi bali prarigor melalui tingkat penambahan asap cair. Fakultas Peternakan. Universitas Hasanuddin. Makassar.

Abustam, E dan H.M.Ali. 2016. Peningkatan sifat fungsional daging sapi bali (*M. Longisismus dorsi)* melalui penambahan asap cair pascamerta dan waktu rigor. Buletin Veteriner Udayana. 8(1):93-98.

Aberle, D.E., J.C. Forrest, DE Gerrard and E.W. Mills. 2001. Principles of Meat Science. Fourth Edition. W. H. Freeman and Company. San Fransisco, United States of America.

Anwar, F., Latif, S., Ashraf, M., and Gilani, A. H. (2007). *Moringa oleifera*: A food plant with multiple medicinal uses. Phytotherapy Research, 21, 17–25.

Astati. 2013.Tingkat perubahan kualitas bakso daging sapi bali bagian sandung lamur (*Pectoralis profundus*) selama penyimpanan dengan pemberian asap cair Jurnal Teknosains, 7(1):10-19.

Bintaro, V. P. 2008. Teknologi Pengolahan Daging dan Analisis Produk. Badan Penerbit Universitas Diponegoro, Semarang. (18-30)

Budijanto, S., Hasbullah, R., Prabawati, S., Setyadjit, Sukarno dan Zuraida, I., 2008. Identifikasi dan uji keamanan asap cair tempurung kelapa untuk produk pangan. *J. Pascapanen*. Vol. 5 No. 1. Hal. 32-40.

Das, A. K., Rajkumar, V., Verma, A. K., dan Swarup, D. (2012). *Moringa oleifera* leaves extract: A natural antioxidant for retarding lipid peroxidation in cooked goat meat patties. International Journal of Food Science and Technology, 47, 585–591.

Domiszewski, Z., G. Bienkiewicz, and D. Plust. 2011. Effects of different heat treatments onlipid quality of striped catfish *(Pangasius hypopthalmus)*. *Acta Sci. Pol. Technol. Aliment* 10(3):359-373.

Fogle, D.R., RF Plimton, H.W. Ockerman, L. Jarenback, and T. Person. 1982. *Tenderization of beef : effect of enzyme, level enzyme and cooking method, journal of food science*.(47).

.C., E.D Aberle, H.B Hedrick, M.D Judge, R.A Merkel. 1992. Principle f Meat Science. W.H Freeman and Co. San Fransisco. USA

, V. 1994. Metode Perancangan Percobaan. Bandung. (187-199)

Gurbuz, Y., M. Kaplad., and D. R. Davies. 2008. Effects of condensed tannin on digestibility and determination of nutritive lagumes species. Journal of Animal and Veterinary 7 (7): 852-862.

Hafid, H dan Syam, A. 2007. Pengaruh Aging dan Lokasi Otot Terhadap Kualaitas Organoleptik Daging Sapi. Fakultas Peternakan UGM. Yogyakarta. (209-216)

Hamm, R. 1986. Functional properties of the myofibrillar system and their measurements. In: Muscle As Foods (P.J.Bechtel, Ed.). p, 135.

Joo ST, Kim GD, Hwang YH, Ryu YC. 2013. Control of fresh meat quality through manipulation of muscle fiber characteristics. Review. *Meat Sci* 95(4): 828-836.

Karseno, P. Darmadji dan K. Rahayu. 2002. Daya hambat asap cair kayu karet terhadap bakteri pengkontaminan lateks dan *ribbed smoke sheet*. Agritech 21(1):10-15.

Kasim, F., A. N. Fitrah., dan E. Hambali. 2015. Aplikasi asap cair pada lateks. Jurnal Pasti. 9 (1) : 28 – 34.

Koswara, S. 2009. Teknologi praktis pengolahan daging. http://tekpan unismuh.ac.id/wp.uploads/teknologi-pengolahan daging.pdf. (diakses 25 Februari 2019).

Mahmood KT, Tahira Mugal, Ikram Ul Haq. 2011. *Moringa oleifera*: a natural gift-A review. Journal of Pharmaceutical Sciences and Research 2 (11): 775-781.

Mardiana, L. (2013). Daun Ajaib Tumpas Penyakit. Jakarta: Penebar Swadaya. Halaman (47-71)

Mendieta-Araica B, Sporndly E, Reyes-Sanchez N, Salmeron-Miranda F, Halling M (2013). Biomass production and chemical composition of *Moringa oleifera* under different planting densities and levels of nitrogen fertilization. Agroforest. Syst. 87:81-92.

Misra, S., & Misra, M. K. (2014). Nutritional evaluation of some leafy vegetable used by the tribal and rural people of south Odisha, India. Journal of Natural Product and Plant Resources, 4, 23-28.

Muthukumar, M., Naveena, B. M. Vaithiyanathan, S., Sen, A. R., & Sureshkumar, K. (2012). Effect of incorporation of *Moringa oleifera* leaves extract on quality of ground pork patties. Journal of Food Science and Technology): 156-162

ro. 1997. Mikrobiologi Pangan Hewan Nabati. Penerbit Kanisius, ogyakarta

Pangestika,R., D.Septinova dan K.Adhianto.2017.Kualitas fisik pada potongan primal karkas sapi krui betina di kabupaten pesisir barat lampung.Jurnal Riset dan Inovasi Peternakan. 1(3):16-20.

Prajapati RD, Murdia PC, Yadav CM, Chaudhary JL. 2003. Nutritive value of drumstick (*Moringa oleifera*) leaves in sheep and goats. Indian Journal of Small Ruminants (2): 136-137.

Ramadhan,E dan Sudarsono. 2013. Radicals arrest of 2,2-diphenyl-1-pycryl hydrazyl (DPPH) in ripe and raw papaya fruit (*Carica papaya L*. (orentang).Traditional Medicine Journal. 18(3):167-172.

Immy, R. dan Evy, A.S. 2015. Kandungan fitokimia beberapa jenis tmbuhan lokal yang sering dimanfaatkan sebagai bahan baku obat di pulau lombok. Jurnal volume 1 nomor 2 april 2015.

Soeparno. 2009. Ilmu dan Teknologi Daging. Gadjah Mada University Prees. Yogyakarta. (131-132):(297-300)

Suwiti,N.K dan I.P.Suastika. 2008. Studi histologi dan histomorfometri daging sapi bali dan wagyu. jurnal veteriner. 16 (3) : 432-438.

Suwiti,N.K. 2008. Identifikasi daging sapi bali dengan metode histologis Majalah Ilmiah Peternakan.11(1):31-35.

Vanselow,K.H., K.Marxen., S. Lippemeier dan R.Hintze. 2007. Determination of DPPH Radical Oxidation Cause by Methanolic Extracts of Some Microalgal Species by Linear Regression Analysis of Spectrophotometric Measurements. *Sensors.*

Verma, A.R., Vijayakumar, M., Mathela, C.S., Rao, C.V., 2009. In vitro and in vivo antioxidant properties of different fractions of *Moringa oleifera* leaves. Food Chem. Toxicol. 47, 2196– 2201.

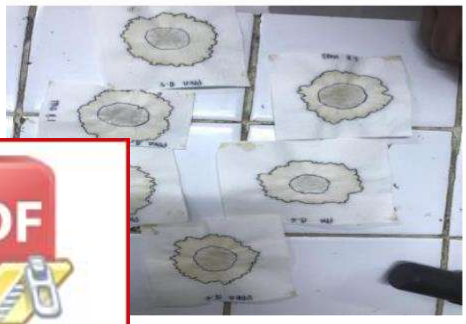
Wahdaningsih, S., Prawita E.S, Wahyuono, S. Aktivitas penangkap radikal bebas dari batang pakis (*Asophilla glauca* J. Sm). Majalah Obat Tradisional. Program Studi Farmasi Fakultas kedookteran dan Ilmu Kesehatan Universitas Tanjungpura Pontianak. 16 (3): 156-160

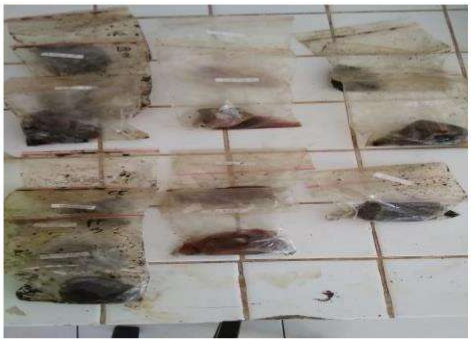
Warris, P.D. 2000. Meat Science an Introductory Text.CAB Publishing. New York. (229-251)

Zulfahmi, M. 2010. Daya Ikat Air, Kadar Air, pH dan Organoleptik Daging Ayam Petelur Afkir yang Direndam dalam Ekstrak Kulit Nenas (*Ananas Comosus* L. Merr) dengan Konsentrasi yang Berbeda. Skripsi. Program tudi Peternakan Fakultas Pertanian dan Peternakan Universitas Islam egeri Sultan Syarif Kasim Riau Pekanbaru.

LAMPIRAN

Lampiran 1. Dokumentasi





Lampiran 2. Analisis hasil pengujian Daya ikat Air yang dibalur kombinasi tepung asap cair dan tepung daun kelor

Descriptive Statistics

Dependent Variable:Daya_Ikat_Air

Kombinasi_TAC_TDK	Waktu_Maturasi	Mean	Std. Deviation	N
25:75	0 hari	25.4367	4.17632	3
	2 hari	24.1267	1.51451	3
	4 hari	23.3433	2.53066	3
	6 hari	23.3833	1.31698	3
	8 hari	23.5200	2.29419	3
	Total	23.9620	2.32408	15
75:25	0 hari	18.4633	5.00372	3
	2 hari	22.2933	1.58090	3
	4 hari	28.1033	.97705	3
	6 hari	22.7700	1.51858	3
	8 hari	21.6067	7.34843	3
	Total	22.6473	4.74405	15
50:50	0 hari	22.2167	1.16001	3
	2 hari	22.2633	.96002	3
	4 hari	29.7267	4.65775	3
	6 hari	32.6233	3.61445	3
	8 hari	25.5067	3.02022	3
	Total	26.4673	4.98461	15
Total	0 hari	22.0389	4.48236	9
	2 hari	22.8944	1.51093	9
	4 hari	27.0578	3.93933	9
	6 hari	26.2589	5.20878	9
	8 hari	23.5444	4.46636	9
	Total	24.3589	4.39922	45

Tests of Between-Subjects Effects

Dependent Variable:Daya_Ikat_Air

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	523.376[a]	14	37.384	3.418	.002
Intercept	26700.996	1	26700.996	2.441E3	.000
Kombinasi_TAC_TDK	112.987	2	56.494	5.165	.012
Waktu_Maturasi	171.759	4	42.940	3.925	.011
Kombinasi_TAC_TDK * Waktu_Maturasi	238.629	8	29.829	2.727	.022
Error	328.164	30	10.939		
Total	27552.535	45			
Corrected Total	851.539	44			

a. R Squared = .615 (Adjusted R Squared = .435)

Multiple Comparisons

Dependent Variable:Daya_Ikat_Air

	(I) Kombinasi_TAC_TDK	(J) Kombinasi_TAC_TDK	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	25:75	75:25	1.3147	1.20769	.285	-1.1518	3.7811
		50:50	-2.5053*	1.20769	.047	-4.9718	-.0389
	75:25	25:75	-1.3147	1.20769	.285	-3.7811	1.1518
		50:50	-3.8200*	1.20769	.004	-6.2864	-1.3536
	50:50	25:75	2.5053*	1.20769	.047	.0389	4.9718
		75:25	3.8200*	1.20769	.004	1.3536	6.2864

Homogeneous Subsets

Daya_Ikat_Air

	Kombinasi_TAC_TDK	N	Subset 1	Subset 2
Duncan[a]	75:25	15	22.6473	
	25:75	15	23.9620	
	50:50	15		26.4673
	Sig.		.285	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 10.939.

a. Uses Harmonic Mean Sample Size = 15.000.

Waktu_Maturasi

Multiple Comparisons

Dependent Variable:Daya_Ikat_Air

	(I) Waktu_Maturasi	(J) Waktu_Maturasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	0 hari	2 hari	-.8556	1.55912	.587	-4.0397	2.3286
		4 hari	-5.0189*	1.55912	.003	-8.2030	-1.8347
		6 hari	-4.2200*	1.55912	.011	-7.4041	-1.0359
		8 hari	-1.5056	1.55912	.342	-4.6897	1.6786
	2 hari	0 hari	.8556	1.55912	.587	-2.3286	4.0397
		4 hari	-4.1633*	1.55912	.012	-7.3475	-.9792
		6 hari	-3.3644*	1.55912	.039	-6.5486	-.1803
		8 hari	-.6500	1.55912	.680	-3.8341	2.5341
	4 hari	0 hari	5.0189*	1.55912	.003	1.8347	8.2030
		2 hari	4.1633*	1.55912	.012	.9792	7.3475
		6 hari	.7989	1.55912	.612	-2.3853	3.9830
		8 hari	3.5133*	1.55912	.032	.3292	6.6975
	6 hari	0 hari	4.2200*	1.55912	.011	1.0359	7.4041
		2 hari	3.3644*	1.55912	.039	.1803	6.5486
		4 hari	-.7989	1.55912	.612	-3.9830	2.3853
		8 hari	2.7144	1.55912	.092	-.4697	5.8986
	8 hari	0 hari	1.5056	1.55912	.342	-1.6786	4.6897
		2 hari	.6500	1.55912	.680	-2.5341	3.8341
		4 hari	-3.5133*	1.55912	.032	-6.6975	-.3292
		6 hari	-2.7144	1.55912	.092	-5.8986	.4697

Based on observed means.
The error term is Mean Square(Error) = 10.939.

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

Homogeneous Subsets

Daya_Ikat_Air

	Waktu_Maturasi	N	Subset		
			1	2	3
Duncan[a]	0 hari	9	22.0389		
	2 hari	9	22.8944		
	8 hari	9	23.5444	23.5444	
	6 hari	9		26.2589	26.2589
	4 hari	9			27.0578
	Sig.		.371	.092	.612

Descriptive Statistics

Dependent Variable:Daya_Ikat_Air

Interaksi	Mean	Std. Deviation	N
25:75, 0 hari	25.4367	4.17632	3
25:75, 2 hari	24.1267	1.51451	3
25:75, 4 hari	23.3433	2.53066	3
25:75, 6 hari	23.3833	1.31698	3
25:75, 8 hari	23.5200	2.29419	3
75:25, 0 hari	18.4633	5.00372	3
75:25, 2 hari	22.2933	1.58090	3
75:25, 4 hari	28.1033	.97705	3
75:25, 6 hari	22.7700	1.51858	3
75:25, 8 hari	21.6067	7.34843	3
50:50, 0 hari	22.2167	1.16001	3
50:50, 2 hari	22.2633	.96002	3
50:50, 4 hari	29.7267	4.65775	3
50:50, 6 hari	32.6233	3.61445	3
50:50, 8 hari	25.5067	3.02022	3
Total	24.3589	4.39922	45

Tests of Between-Subjects Effects

Dependent Variable:Daya_Ikat_Air

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	523.376[a]	14	37.384	3.418	.002
Intercept	26700.996	1	26700.996	2.441E3	.000
Interaksi	523.376	14	37.384	3.418	.002
Error	328.164	30	10.939		
Total	27552.535	45			
Corrected Total	851.539	44			

Duncan

Interaksi	N	Subset 1	2	3	4
75:25, 0 hari	3	18.4633			
75:25, 8 hari	3	21.6067	21.6067		
50:50, 0 hari	3	22.2167	22.2167		
50:50, 2 hari	3	22.2633	22.2633		
75:25, 2 hari	3	22.2933	22.2933		
75:25, 6 hari	3	22.7700	22.7700		
25:75, 4 hari	3	23.3433	23.3433		
25:75, 6 hari	3	23.3833	23.3833		
25:75, 8 hari	3	23.5200	23.5200		
25:75, 2 hari	3	24.1267	24.1267	24.1267	
25:75, 0 hari	3		25.4367	25.4367	
50:50, 8 hari	3		25.5067	25.5067	
75:25, 4 hari	3		28.1033	28.1033	28.1033
50:50, 4 hari	3			29.7267	29.7267
50:50, 6 hari	3				32.6233
Sig.		.083	.050	.072	.123

Lampiran 3. Analisis hasil pengujian Susut Masak yang dibalur kombinasi tepung asap cair dan tepung daun kelor

Descriptive Statistics

Dependent Variable:Susut_Masak

Kombinasi_TAC_TDK	Waktu_Maturasi	Mean	Std. Deviation	N
25:75	0 hari	3.2633	.21221	3
	2 hari	1.6967	.50649	3
	4 hari	2.3900	.12166	3
	6 hari	3.5600	.19313	3
	8 hari	3.3100	.03606	3
	Total	2.8440	.75566	15
75:25	0 hari	3.0933	.25541	3
	2 hari	1.4700	.28931	3
	4 hari	1.6800	.37323	3
	6 hari	3.5200	.21000	3
	8 hari	2.8967	.11719	3
	Total	2.5320	.86710	15
50:50	0 hari	3.0433	.31644	3
	2 hari	1.6900	.07000	3
	4 hari	2.4500	.22869	3
	6 hari	3.2733	.39716	3
	8 hari	3.3333	.11719	3
	Total	2.7580	.67602	15
Total	0 hari	3.1333	.25015	9
	2 hari	1.6189	.31426	9
	4 hari	2.1733	.43494	9
	6 hari	3.4511	.27904	9
	8 hari	3.1800	.22902	9
	Total	2.7113	.76422	45

Tests of Between-Subjects Effects

Dependent Variable:Susut_Masak

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	23.638[a]	14	1.688	24.593	.000
Intercept	330.810	1	330.810	4.818E3	.000
Kombinasi_TAC_TDK	.779	2	.390	5.674	.008
Waktu_Maturasi	21.851	4	5.463	79.567	.000
Kombinasi_TAC_TDK * Waktu_Maturasi	1.008	8	.126	1.835	.109
Error	2.060	30	.069		
Total	356.507	45			
Corrected Total	25.698	44			

Kombinasi_TAC_TDK

Multiple Comparisons

Dependent Variable:Susut_Masak

	(I) Kombinasi_TAC_TDK	(J) Kombinasi_TAC_TDK	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	25:75	75:25	.3120*	.09568	.003	.1166	.5074
		50:50	.0860	.09568	.376	-.1094	.2814
	75:25	25:75	-.3120*	.09568	.003	-.5074	-.1166
		50:50	-.2260*	.09568	.025	-.4214	-.0306
	50:50	25:75	-.0860	.09568	.376	-.2814	.1094
		75:25	.2260*	.09568	.025	.0306	.4214

Homogeneous Subsets

Susut_Masak

	Kombinasi_TAC_TDK	N	Subset 1	Subset 2
Duncan[a]	75:25	15	2.5320	
	50:50	15		2.7580
		15		2.8440
			1.000	.376

Waktu_Maturasi

Multiple Comparisons

Dependent Variable:Susut_Masak

	(I) Waktu_Maturasi	(J) Waktu_Maturasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	0 hari	2 hari	1.5144*	.12352	.000	1.2622	1.7667
		4 hari	.9600*	.12352	.000	.7077	1.2123
		6 hari	-.3178*	.12352	.015	-.5700	-.0655
		8 hari	-.0467	.12352	.708	-.2989	.2056
	2 hari	0 hari	-1.5144*	.12352	.000	-1.7667	-1.2622
		4 hari	-.5544*	.12352	.000	-.8067	-.3022
		6 hari	-1.8322*	.12352	.000	-2.0845	-1.5800
		8 hari	-1.5611*	.12352	.000	-1.8134	-1.3089
	4 hari	0 hari	-.9600*	.12352	.000	-1.2123	-.7077
		2 hari	.5544*	.12352	.000	.3022	.8067
		6 hari	-1.2778*	.12352	.000	-1.5300	-1.0255
		8 hari	-1.0067*	.12352	.000	-1.2589	-.7544
	6 hari	0 hari	.3178*	.12352	.015	.0655	.5700
		2 hari	1.8322*	.12352	.000	1.5800	2.0845
		4 hari	1.2778*	.12352	.000	1.0255	1.5300
		8 hari	.2711*	.12352	.036	.0189	.5234
	8 hari	0 hari	.0467	.12352	.708	-.2056	.2989
		2 hari	1.5611*	.12352	.000	1.3089	1.8134
		4 hari	1.0067*	.12352	.000	.7544	1.2589
		6 hari	-.2711*	.12352	.036	-.5234	-.0189

Homogeneous Subsets

Susut_Masak

	Waktu_Maturasi	N	Subset 1	Subset 2	Subset 3	Subset 4
Duncan[a]	2 hari	9	1.6189			
	4 hari	9		2.1733		
	0 hari	9			3.1333	
	8 hari	9			3.1800	
	6 hari	9				3.4511
	Sig.		1.000	1.000	.708	1.000

Lampiran 4. Analisis hasil pengujian Antioksidan yang dibalur kombinasi tepung asap cair dan tepung daun kelor

Between-Subjects Factors

		Value Label	N
Kombinasi_TAC_TDK	A1	25:75	15
	A2	75:25	15
	A3	50:50	15
Waktu_Maturasi	B1	0 hari	9
	B2	2 hari	9
	B3	4 hari	9
	B4	6 hari	9
	B5	8 hari	9

Descriptive Statistics

Dependent Variable:Antioksidan

Kombinasi_TAC_TDK	Waktu_Maturasi	Mean	Std. Deviation	N
25:75	0 hari	12.0167	10.93020	3
	2 hari	18.0967	.63406	3
	4 hari	18.1100	3.62286	3
	6 hari	2.7300	.66551	3
	8 hari	2.3367	1.39965	3
	Total	10.6580	8.47360	15
75:25	0 hari	12.5133	9.62090	3
	2 hari	22.9800	1.94106	3
	4 hari	19.7367	6.48842	3
	6 hari	1.6767	.62453	3
	8 hari	2.9000	.13115	3
	Total	11.9613	9.95645	15
	hari	18.5000	5.01192	3
	hari	18.1200	4.23631	3
	hari	15.9967	2.33397	3

	6 hari	1.0467	.31342	3
	8 hari	.9333	.15177	3
	Total	10.9193	8.84035	15
Total	0 hari	14.3433	8.30979	9
	2 hari	19.7322	3.38562	9
	4 hari	17.9478	4.21966	9
	6 hari	1.8178	.88051	9
	8 hari	2.0567	1.12655	9
	Total	11.1796	8.92067	45

Tests of Between-Subjects Effects

Dependent Variable:Antioksidan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2855.710[a]	14	203.979	9.477	.000
Intercept	5624.211	1	5624.211	261.292	.000
Kombinasi_TAC_TDK	14.264	2	7.132	.331	.721
Waktu_Maturasi	2698.528	4	674.632	31.342	.000
Kombinasi_TAC_TDK * Waktu_Maturasi	142.918	8	17.865	.830	.583
Error	645.738	30	21.525		
Total	9125.658	45			
Corrected Total	3501.447	44			

Homogeneous Subsets

Antioksidan

Kombinasi_TAC_TDK	N	Subset 1
:75	15	10.6580
_50:50	15	10.9193

Homogeneous Subsets

Antioksidan

	Waktu_Maturasi	N	Subset 1	Subset 2	Subset 3
Duncan[a]	6 hari	9	1.8178		
	8 hari	9	2.0567		
	0 hari	9		14.3433	
	4 hari	9		17.9478	17.9478
	2 hari	9			19.7322
	Sig.		.914	.110	.421

BIODATA

Nama Lengkap : **Edi Sukaryono**

Nama Panggilan : **Edi**

No. Pokok : **I111 15 014**

Jenis Kelamin : **Laki-Laki**

Tempat /Tanggal lahir : **Tompoe 01 Juni 1997**

Alamat : **Tompoe, Kec.Marioriwawo, Kab.Soppeng**

Agama : **Islam**

Suku : **Bugis**

No. Telp : **0853510500026**

Asal SMA : **SMAN 1 Marioriwawo**

Tahun tamat SMA : **2015**

Fakultas/ Jurusan/Prodi : **Peternakan/Peternakan**

Judul Skripsi : **Daya Ikat Air, Susut Masak dan Aktivitas Antioksidan Daging Sapi yang Dibalur Kombinasi Tepung Asap Cair dan Tepung Daun Kelor**

Nama Orangtua

1. **Ayah** : **Supu**
2. **Ibu** : **Rukya**

Pekerjaan Orangtua

1. **Ayah** : **Petani**
2. **Ibu** : **IRT**

Alamat Email : **edisukariono@gmail.com**