

DAFTAR PUSTAKA

- Alfian, R., dan Susanti, H. 2012. Penetapan Kandungan Fenolik Total Ekstrak Metanol Kelopak Bunga Rosella Merah (*Hibiscus sabdariffa* Linn) dengan Variasi Tempat Tumbuh Secara Spektrofotometri. *Pharmaciana*.2. (1).
- Apriliza, M. N., Anggraeni, YN., dan Wina, E. 2021. Peran Senyawa Katekin dan Derivatnya Dalam Mitigasi Produksi Metana Asal Fermentasi di Dalam Rumen. *Journal Wartazoa* Vol.31 No. 1 Th. 2021 Hlm. 13-22.
- Chavan, Y. V., & Singhal, R. S. 2013. *Separation of polyphenols and arecoline from areca nut (Areca catechu L.) by solvent extraction, its antioxidant activity, and identification of polyphenols. Journal of the Science of Food and Agriculture*, 93(10), 2580–2589.
- Cheng, H. L., Su, S. J., Huang, L. W., Hsieh, B. S., Hu, Y. C., Hung, T. C., & Chang, K. L. 2010. Arecoline induces HA22T/VGH hepatoma cells to undergo anoikis - involvement of STAT3 and RhoA activation. *Molecular Cancer*, 9, 1–12.
- Cahyani, S., I., & Hadriyati, A. 2020. Antioxidant Activity Test Extract And Areca Peel (*Areca Catechu L*) Rind Fraction From Tanjung Jabung Barat District. *Journal of Healthcare Technology and Medicine*, 6(1), 2615–109.
- Castro-López, C., Rojas, R., Sánchez-Alejo, E. J., Niño-Medina, G., and Martínez-Ávila, G. C. G. 2016. Phenolic Compound Recovery from Grape Fruit and By- Products: An Overview of Extraction Methods. In *Grape and Wine Biotechnology*.
- Cifuentes, A. 2020. *Comprehensive Foodomics*. Elsevier : Netherland.
- Chemat.F dan Cravotto.G.2013.Microwave-Assisted Extraction For Bioactive Compounds; Theory and Practice. *Food engineering series: Springer Science+Business Media*, New York.
- Dachriyanus.2004.Analisis Struktur Senyawa Organik Secara Spektroskopi. *Lembaga Pengembangan Teknologi Informasi dan Komunikasi*. Universitas Andalas.
- Dalimartha, S. (2009). *Atlas Tumbuhan Obat Indonesia*, Jilid 6, 153-154. Jakarta : Pustaka Bunda.
- Departemen Kesehatan Republik Indonesia. 2017. *Farmakope Herbal Indonesia*. Kementerian Kesehatan Republik Indonesia, Jakarta.

- Dutta, D., Ramanna, C., & Kamath, V. V. 2017. Estimation of Arecoline Content of Various Forms of Areca Nut Preparations by High-Pressure Thin-Layer Chromatography. *Journal of Advanced Clinical & Research Insights*.4. (2), 31-37.
- Febrianti,R., F. ihsan. 2019. Pemanfaatan Limbah Kulit Buah Pinang dan Batang Sagu *Median Volume 11 Nomor 3 Bulan Oktober 2019*. 11(2009), 13–18.
- Fitriani, E., & Sanuddin, M. 2020. Penetapan Kandungan Polifenol Ekstrak dan Fraksi Kulit Pinang (*Areca catechu L.*) dengan Metode Spektrofotometri UV-Vis Determination of Extract Polyphenol Content and Areca (*Areca catechu L.*) Skin Fraction by UV-Vis Spectrophotometry Method. *Journal of Healthcare Technology and Medicine*, 6(1), 2615–109.
- Gandjar, I. G. dan Rohman, A. 2007. Kimia Farmasi Analisis. Pustaka Pelajar. Yogyakarta.
- Hanani, E. 2015. Analisis Fitokimia. EGC : Jakarta.
- Hidayah, N., Andi, H. A. & Harlia. 2019. Aktivitas Antioksidan dan Kandungan Fitokimia dari Ekstrak Kulit Buah Pinang Sirih Muda dan Tua (*Areca catechu L.*) *Jurnal Kimia Khatulistiwa* 8(2):52-60.
- Idroes, R., Khairan , Novl, W.N., Nurul, M., Rd. Rhegyna, P.G., R. 2019. Skrining Aktivitas Tumbuhan yang Berpotensi sebagai Bahan Anti Mikroba di Kawasan Ie Brok (Upflow Geothermal Zone) Aceh Besar. Syiah Kuala University Press.
- Ismail, J., Max, R. J. R., & Feti, F. 2012. Penentuan Total Fenolik dan Uji Aktivitas Antioksidan pada Biji dan Kulit Buah Pinang Yaki. *Jurnal Ilmiah Sains* Vol. 12 No. 2.
- Julianto, T. S. 2019. Fitokimia Tinjauan Metabolit Sekunder dan Skiring Fitokimia. Universitas Islam Indonesia. Yogyakarta.
- Kemenkes RI. (2017). Farmakope Herbal Indonesia Edisi 2 (p. 561).
- Kristanti, A.N., Nanik, S. A., Mulyadi, T. & Bambang, K. 2018. Buku Ajar Fitokimia. Surabaya :Airlangga University Press.
- Kholidun. I. 2018. Kimia Analisis Instrumen. Banda Aceh : Syiah Kuala University Press Darussalam.
- Leba, M. A. U.,2017. Buku Ajar : Ekstraksi dan Real Kromatografi Ed 1. Yogyakarta: Deepublish.
- Maruti, A. A., & Khamsita, R. 2011. Sinergitas efek sitotoksik kombinasi arekolin dan doxorubicin pada sel kanker serviks HeLa. *Majalah*

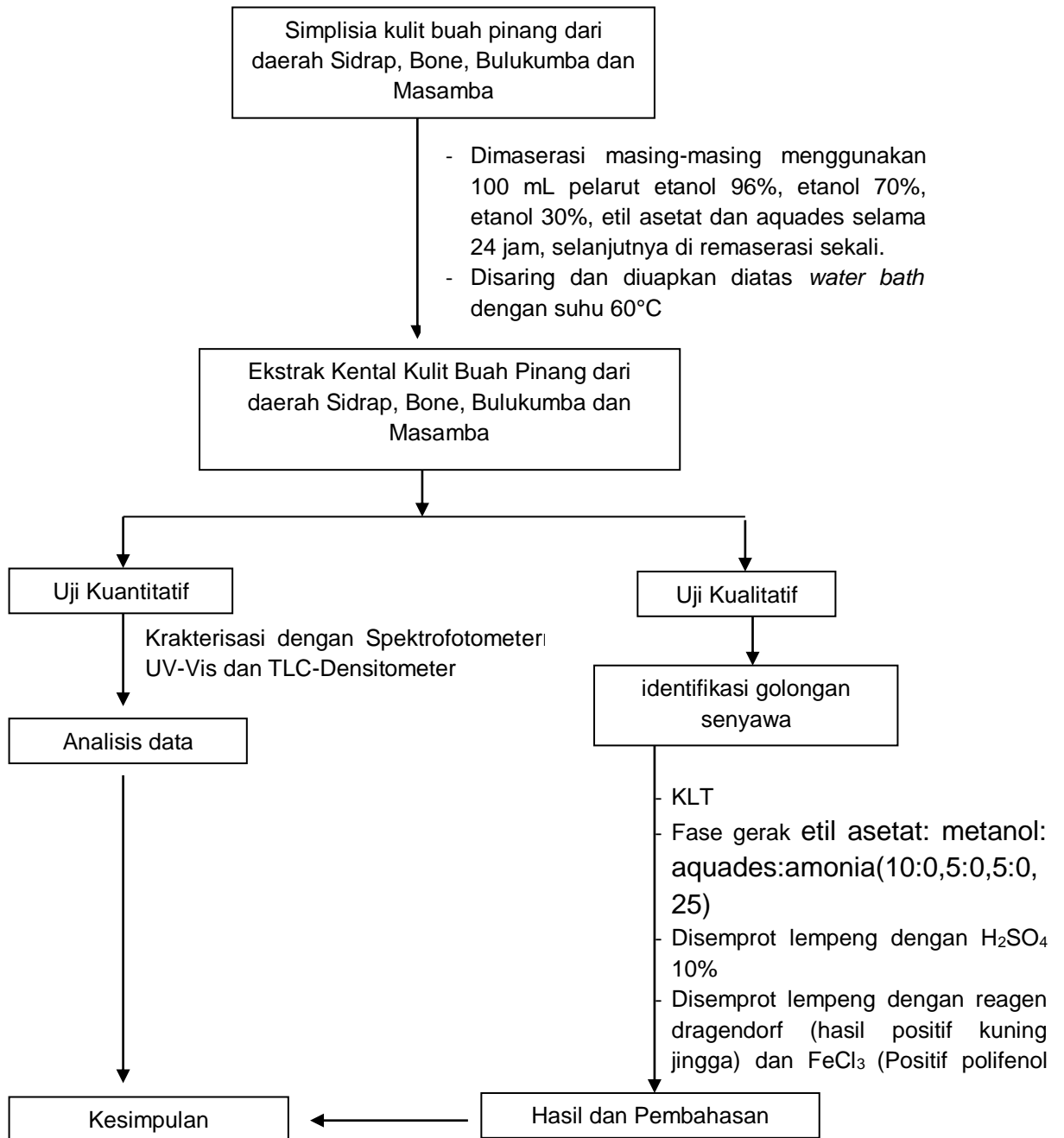
Farmasi Indonesia, 22(4), 265–272.

- Masduqi, A.F., Izzati, M., Prihastanti, E., 2014. Efek metode pengeringan terhadap kandungan bahan kimia dalam rumput laut. *Bul. Anat. dan Fisiol.* XXII, 1–9.
- Miftahorrachman, Matana, Y. R. and Salim. 2015. *Teknologi Budidaya dan Pasca Panen Pinang*. Manado: Balai Penelitian Tanaman Palma.
- Najib,A.2018. *Ekstraksi Senyawa Bahan Alam* .1st ed. Yogyakarta: Deepublish,Oktober 2018.
- Petrina, R., Alimuddin, A. H., & Harlia. 2017. Uji Aktivitas Antioksidan dan Toksisitas Kulit Biji Pinang Sirih (*Areca catechu L.*). *Jkk Issn : 2303-1077*, 6(2), 70–77.
- Pribady, H.K., Mirhansyah, A., Rusli. R. 2019. Potensi Ekstrak Kulit Buah Pinang sebagai Antibakteri *Propionibacterium acne* Penyebab Jerawat. *Proceeding of Mulawarman Pharmaceuticals Conferences*, Samarinda, 16-17 Oktober 2019, 100-103.
- Putri H.D., Sumpono., Nurhamidah. 2018.Uji Aktivitas Asap Cair Cangkang Buah Karet dan Aplikasinya dalam Pengembangan Katengikan Daging Sapi. *Alotrop, Jurnal Pendidikan dan Ilmu Kimia* 2 (2):97-105
- Rohman, A. 2020. *Analisis Farmasi dengan Kromatografi Cair*. Yogyakarta: Gadjah Mada University Press.
- Riwanti, P.,Farizah,I.,Amaliyah. 2020. Pengaruh Perbedaan Konsentrasi Etanol pada Kandungan Flavonoid Total Ekstrak Etanol 50, 70, dan 96% *Sargassum polycystum* dari Madura. *Journal of Pharmaceutical Care Anwar Medika*. Vol.2 No.2. ISSN:2654-8364.
- Silalahi, M. 2020. Manfaat dan Toksisitas Pinang (*Areca catechu*) dalam Kesehatan Manusia. *Bina Generasi : Jurnal Kesehatan*, 11(2), pp. 29–34. doi: 10.35907/bgjk.v11i2.140.
- Savitri, I., Lutfi. S., & Ni, M. W. 2017. Pengaruh Jenis Pelarut pada Metode Maserasi Terhadap Karakteristik Ekstrak *Sargassum polycystu*. *Jurnal Rekayasa dan Manajemen Argoindustri*. 2503-488X, Vol 5. No. 3 september 2017 (93-101)
- Saidi, N., Binawati, G., Murniana., Mustanir. 2018. *Analisis Metabolik Sekunder*. edisi 1. Syiah Kuala Lumpur Press. Banda Aceh.
- Saputri, R.K. dan Ria, I. K., 2019. *Farmakognosi*. 978-623-6955-85-7 : CV. Jakad Media Publishing.
- Suhendra,C. P., Wayan,R.W & Sri, W. 2019. Pengaruh Konsentrasi Etanol

- Terhadap Aktivitas Antioksidan Ekstrak Rimpang Ilalang (*Imperata cylindrica* L.) pada Ekstraksi Menggunakan Gelombang Ultrasonik. *Jurnal Ilmu dan Teknologi Pangan* Vol.8, No.1,27-35.
- Sutrisna. EM. 2016. *Herba Medicine : Suatu Tinjauan Farmakologis*. Surakarta : Muhammadiyah University Press.
- Tahid, 1994. *Spektroskopi Inframerah, transformasi Fourier No II Tahun VIII*. Bandung: Warta Kimia Analisis
- Wardani, A.T & Leviana, F. 2010. Pengaruh Cairan Penyari Terhadap Rendemen dan Kadar Tanin Ekstrak Daun Jambu Biji (*Psidium guajava* L.) *J. Farmasi Indonesia* Vol. 7. ISSN: 1693-8615.
- Wahyuni, D.K., Wiwied,E., Joko, R.W., Hery.P. 2006. *Toga Indonesia*. Airlangga University Press : Surabaya
- Widyaningsih, T. D., Wijayanti, N. & Ida P. N. N. 2017. *Pangan Fungsional: Aspek Kesehatan, Evaluasi dan Regulasi*. Malang:Universitas Brawijaya Press.
- Widaryanto, E & Azizah, N. 2018. *Perspektif Tanaman Obat Berkhasiat*. UB Press. Malang.
- Wulandari, L. 2011. *Kromatografi Lapis Tipis*. PT. Taman Kampus Presindo : Jember.
- Watson, D. G. 2009. *Analisis Farmasi : Buku Ajar untuk Mahasiswa Farmasi dan Praktisi Kimia Farmasi*. EGC : Jakarta.
- Yulianis, Fitriani, E., & Sanuddin, M. 2020. Penetapan Kandungan Polifenol Ekstrak dan Fraksi Kulit Pinang (*Areca catechu* L.) dengan Metode Spektrofotometri UV-Vis. *Journal of Healthcare Technology and Medicine*, 6(1), 2615–109.
- Yeni, G., Syamsu, K., Mardiyati, E., Muchtar, H., 2017 Penentuan Teknologi Proses Pembuatan Gambir Murni dan Katekin Tersandar adari Gambir Alasan. *Jurnal Litbang Industri*, Vol. 7 No. 1, Juni 2017: 1-10.

LAMPIRAN

Lampiran 1. Skema Kerja



Lampiran 2. Dokumentasi Penelitian



Gambar 20. Buah pinang



Gambar 21. Kulit buah pinang



Gambar 22. Proses pengeringan



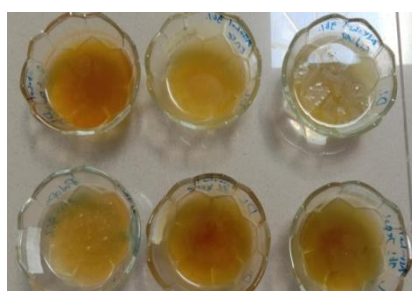
Gambar 23. Penimbangan simplisia



Gambar 24. proses ekstraksi



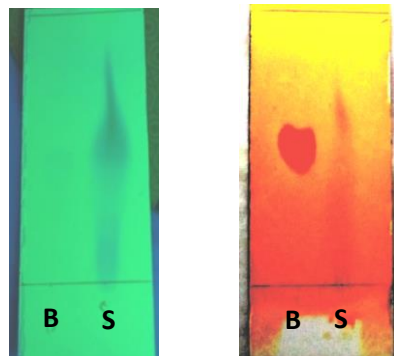
Gambar 25. Proses penyaringan



Gambar 26. Penguapan hasil ekstraksi



Gambar 27. Ekstrak kering kulit buah pinang



Gambar 28. Identifikasi Senyawa alkaloid



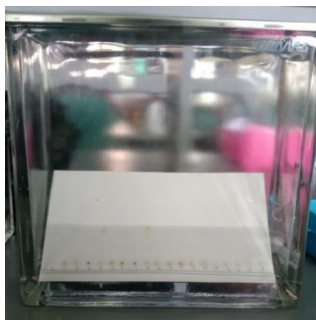
Gambar 29. Identifikasi senyawa polifenol



Gambar 30. Preparasi sampel pengukuran kadar polifenol



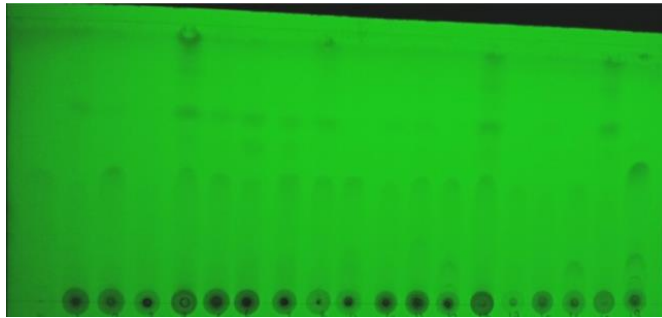
Gambar 31. Alat Spektrofotometer UV-Vis



Gambar32. Proses Elusi



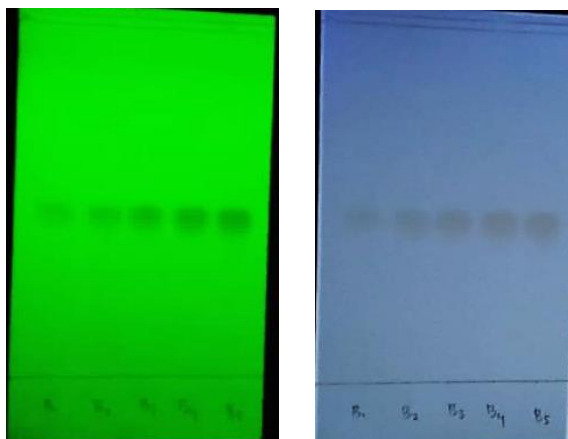
Gambar 33. Alat TLC Scanner



Gambar 34. Hasil KLT untuk densitometri pada sinar UV 254 nm



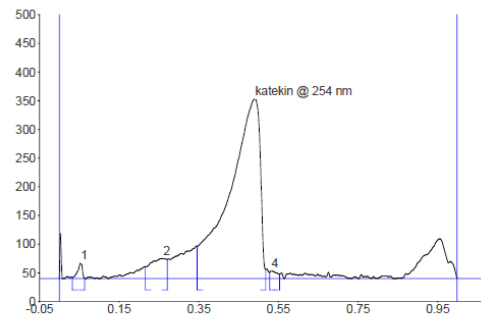
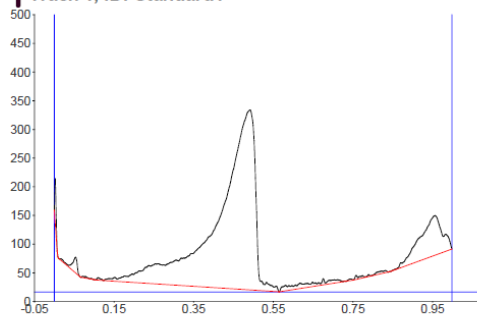
Gambar 35. Hasil KLT untuk densitometri pada sinar UV 366 nm



Gambar 36. Hasil KLT baku katekin pada UV 254 nm dan 366 nm

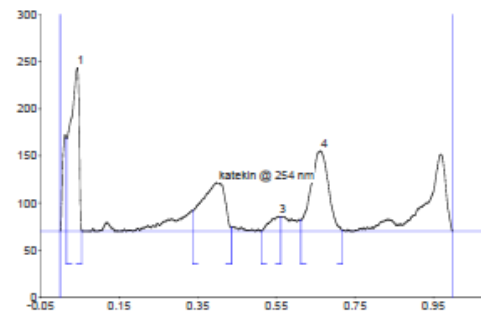
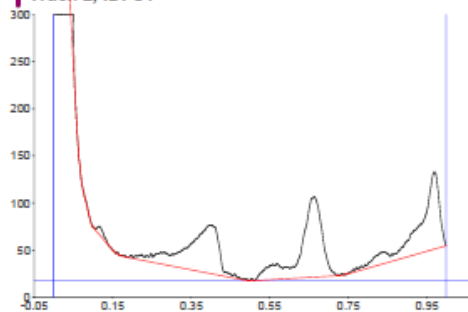
Lampiran 3. Profil KLT-densitometri ekstrak kulit buah pinang pada panjang gelombang 254 nm

Track 1, ID: Standard1



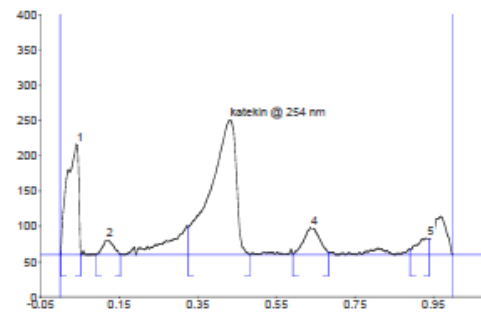
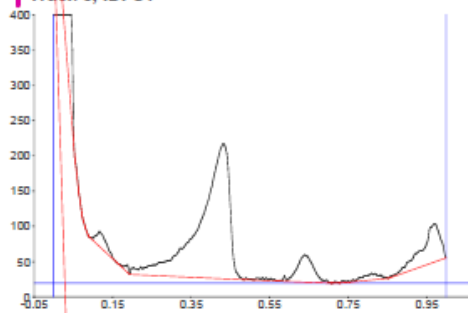
Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.03	2.3	0.05	27.6	7.05	0.06	0.8	294.0	1.23	unknown *
2	0.22	20.3	0.26	35.4	9.05	0.27	33.4	1352.5	5.66	unknown *
3	0.35	56.4	0.49	313.8	80.11	0.52	16.1	22005.7	92.14	katekin
4	0.53	10.8	0.53	14.8	3.79	0.55	7.6	230.0	0.96	unknown *

Track 2, ID: S1



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.02	98.3	0.04	174.0	53.15	0.06	0.6	3685.8	35.34	unknown *
2	0.34	21.8	0.40	51.9	15.86	0.44	4.1	2824.5	27.08	katekin
3	0.51	0.2	0.56	16.1	4.91	0.56	14.7	406.8	3.90	unknown *
4	0.61	11.9	0.67	85.4	26.09	0.72	1.0	3512.2	33.88	unknown *

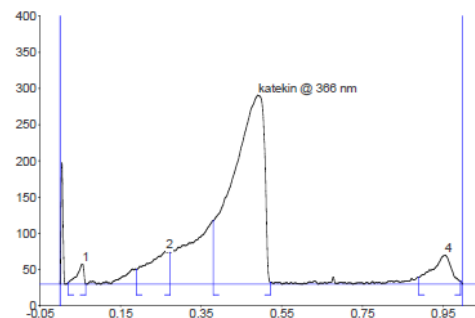
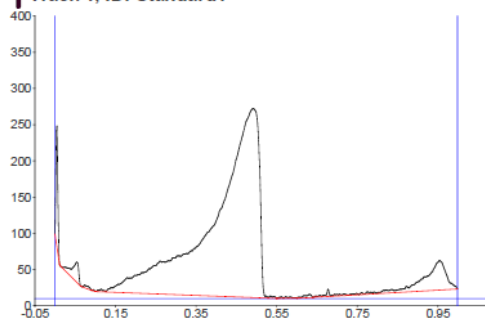
Track 3, ID: S1



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.00	5.4	0.04	157.2	36.35	0.05	1.3	4226.6	23.18	unknown *
2	0.09	0.1	0.12	21.8	5.05	0.15	0.9	534.5	2.93	unknown *
3	0.33	39.6	0.43	191.4	44.24	0.48	0.2	11347.1	62.23	katekin
4	0.59	1.3	0.64	38.4	8.89	0.68	3.8	1440.2	7.90	unknown *
5	0.89	7.4	0.94	23.7	5.47	0.94	22.5	686.7	3.77	unknown *

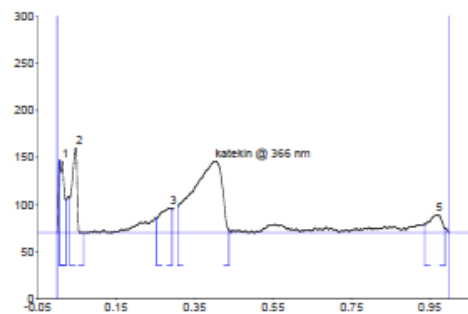
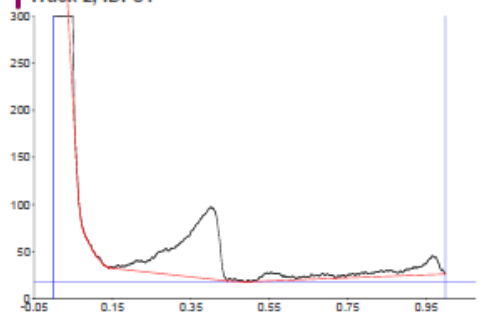
Lampiran 4. Profil KLT-densitometri ekstrak kulit buah pinang pada panjang gelombang 366 nm

Track 1, ID: Standard1



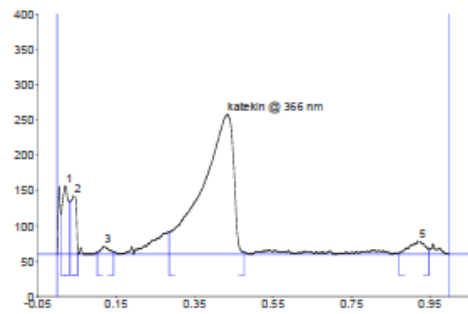
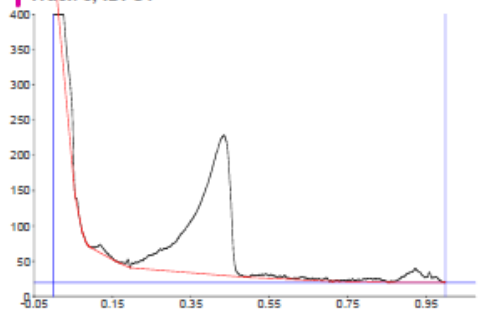
Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.02	2.0	0.06	28.3	7.55	0.06	0.1	434.9	1.87	unknown *
2	0.19	20.5	0.26	45.5	12.12	0.27	44.1	2270.6	9.77	unknown *
3	0.38	87.6	0.49	260.9	69.52	0.52	2.5	18782.3	80.79	katekin
4	0.89	9.4	0.96	40.6	10.81	1.00	4.0	1760.0	7.57	unknown *

Track 2, ID: S1



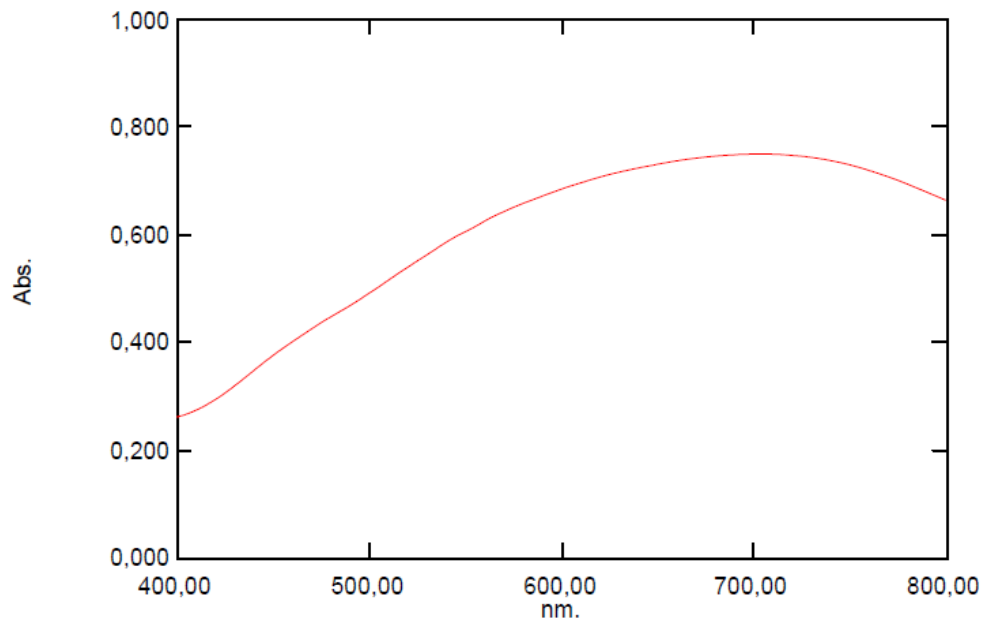
Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	76.5	0.01	76.9	26.41	0.02	35.1	818.5	9.67	unknown *
2	0.03	37.2	0.05	91.2	31.32	0.07	0.0	1074.0	12.89	unknown *
3	0.25	15.8	0.29	26.6	9.14	0.29	25.0	743.6	8.79	unknown *
4	0.31	28.8	0.40	78.4	26.24	0.44	3.1	5248.9	61.99	katekin
5	0.94	8.7	0.97	20.0	6.88	0.99	4.5	581.6	6.87	unknown *

Track 3, ID: S1



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	57.2	0.02	97.7	23.73	0.03	74.8	1481.5	8.20	unknown *
2	0.03	75.5	0.04	84.0	20.41	0.05	0.1	1096.7	6.15	unknown *
3	0.10	2.4	0.12	11.8	2.87	0.14	3.1	228.0	1.28	unknown *
4	0.29	31.2	0.44	198.5	48.19	0.48	2.8	14363.8	80.56	katekin
5	0.87	1.9	0.92	19.8	4.80	0.95	7.0	680.3	3.82	unknown *

Lampiran 5.Spektrum hasil penentuan panjang gelombang maksimum baku katekin menggunakan spektrofotometer UV-Vis



No.	P/V	Wavelength	Abs.	Description
1	●	704,50	0,750	

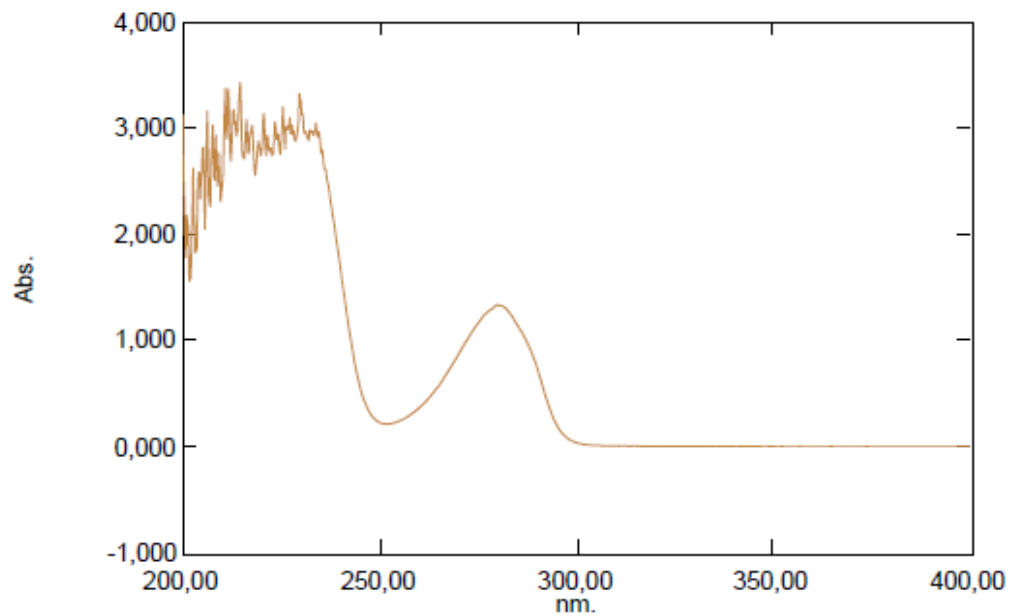
Lampiran 6. Hasil pengukuran absorbansi baku polifenol menggunakan spektrofotometer UV-Vis

Polifenol standar						
Konsentrasi	0 µg/mL	10 µg/mL	30 µg/mL	50 µg/mL	70 µg/mL	90 µg/mL
Absorbansi	-0,000	0,068	0,194	0,352	0,526	0,730

Lampiran 7. Hasil Pengukuran Absorbansi Total Polifenol Ekstrak Kulit Buah Pinang dari Berbagai Daerah Menggunakan Spektrofotometer UV-Vis

Pelarut	Replikasi	Sidrap		Bone		Bulukumba		Masamba	
		Absorbansi	Rata-Rata	Absorbansi	Rata-Rata	Absorbansi	Rata-Rata	Absorbansi	Rata-Rata
Etanol 96%	R1	0,283		0,306		0,229		0,178	
	R2	0,254	0,265	0,291	0,297	0,225	0,233	0,173	0,177
	R3	0,257		0,295		0,244		0,179	
Etanol 70%	R1	0,445		0,272		0,403		0,202	
	R2	0,460	0,450	0,264	0,275	0,384	0,390	0,190	0,201
	R3	0,446		0,290		0,382		0,211	
Etanol 30%	R1	0,290		0,327		0,371		0,354	
	R2	0,287	0,302	0,325	0,331	0,371	0,372	0,372	0,367
	R3	0,329		0,340		0,374		0,376	
Etil Asetat	R1	0,171		0,287		0,222		0,135	
	R2	0,181	0,173	0,272	0,284	0,198	0,212	0,161	0,152
	R3	0,168		0,294		0,216		0,160	
Aquades	R1	0,175		0,391		0,465		0,472	
	R2	0,177	0,170	0,383	0,386	0,463	0,471	0,471	0,48
	R3	0,159		0,384		0,484		0,497	

Lampiran 8.Spektrum hasil penentuan panjang gelombang maksimum baku katekin menggunakan *TLC scanner*



No.	P/V	Wavelength	Abs.	Description
1	↑	364,60	-0,001	
2	↑	343,60	-0,001	
3	↑	280,00	1,333	
4	↑	229,60	3,329	
5	↑	217,60	3,029	
6	↑	206,20	3,164	
7	↓	340,60	-0,002	
8	↓	251,80	0,210	
9	↓	218,40	2,552	
10	↓	207,00	2,255	
11	↓	201,60	1,554	

Lampiran 9. Hasil Pengukuran Kadar Baku Katekin Menggunakan Densitometer

Konsentrasi	Katekin Standar				
	100 ppm	200 ppm	300 ppm	400 ppm	500 ppm
Nilai Rf	0,31	0,39	0,41	0,42	0,43
Luas Area	2238,63	4838,36	7739,13	10108,37	13777,78

Lampiran 10. Hasil Statistik Persen Rendemen Menggunakan Anova: *Two-factor Without Replication*

Lokasi Pengambilan	Etil Asetat	Etanol 96%	Etanol 70%	Etanol 30%	Aquades
Bulukumba	1,51	14,2	14,8	11,51	13,44
Bone	1,26	9,18	12,65	10,33	8,62
Masamba	1,15	10,69	13,48	11,72	3,38
Sidrap	1,33	10,71	12,35	11,26	5,38

Anova: Two-Factor Without Replication

SUMMARY	Count	Sum	Average	Variance
Bulukumba	5	55,46	11,092	30,22787
Bone	5	42,04	8,408	18,35587
Masamba	5	40,42	8,084	29,83413
Sidrap	5	41,03	8,206	22,00883
Etil Asetat	4	5,25	1,3125	0,022825
Etanol 96%	4	44,78	11,195	4,52683333
Etanol 70%	4	53,28	13,32	1,20193333
Etanol 30%	4	44,82	11,205	0,37563333
Aquades	4	30,82	7,705	19,2795667

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	30,92698	3	10,308992	2,73125665	0,0902173	3,490295
Columns	356,4134	4	89,10335	23,6069759	1,299E-05	3,259167
Error	45,2934	12	3,77445			
Total	432,6338	19				

Lampiran 11. Hasil Statistik Kadar Polifenol total Menggunakan Anova: *Single-Factor* dan uji lanjut *t-test*

SIDRAP					
Cairan Penyari	Etanol 96%	Etanol 70%	Etanol 30%	Etil Asetat	Aquades
Replikasi 1	21,991	31,841	18,105	15,225	18,209
Replikasi 2	28,823	31,736	16,96	15,711	17,064
Replikasi 3	27,574	31,841	18,313	15,225	17,584

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Etanol 96%	3	78,388	26,12933	13,23435
Etanol 70%	3	95,418	31,806	0,003675
Etanol 30%	3	53,378	17,79267	0,530816
Etil Asetat	3	46,161	15,387	0,078732
Aquades	3	52,857	17,619	0,328675

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	580,5452	4	145,1363	51,18994	1,26E-06	3,47805
Within Groups	28,3525	10	2,83525			
Total	608,8977	14				

Hasil Uji t-Test: Two-Sample Assuming Unequal Variances

	Etanol 96%	Etanol 70%		Etanol 96%	Etanol 30%
Mean	26,12933	31,806	Mean	26,12933	17,79267
Variance	13,23435	0,003675	Variance	13,23435	0,530816
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	2		df	2	
t Stat	-2,70235		t Stat	3,891906	
P(T<=t) one-tail	0,056996		P(T<=t) one-tail	0,030064	
t Critical one-tail	2,919986		t Critical one-tail	2,919986	
P(T<=t) two-tail	0,113993		P(T<=t) two-tail	0,060127	
t Critical two-tail	4,302653		t Critical two-tail	4,302653	

	Etanol 96%	Etil Asetat		Etanol 96%	Aquades
Mean	26,12933	15,387	Mean	26,12933	17,619
Variance	13,23435	0,078732	Variance	13,23435	0,328675
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	2		df	2	
t Stat	5,09941		t Stat	4,002477	
P(T<=t) one-tail	0,018185		P(T<=t) one-tail	0,028563	
t Critical one-tail	2,919986		t Critical one-tail	2,919986	
P(T<=t) two-tail	0,036371		P(T<=t) two-tail	0,057126	
t Critical two-tail	4,302653		t Critical two-tail	4,302653	

	Etanol 70%	Etanol 30%		Etanol 70%	Etil Asetat
Mean	31,806	17,79267	Mean	31,806	15,387
Variance	0,003675	0,530816	Variance	0,003675	0,078732
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	2		df	2	
t Stat	33,19952		t Stat	99,06615	
P(T<=t) one-tail	0,000453		P(T<=t) one-tail	5,09E-05	
t Critical one-tail	2,919986		t Critical one-tail	2,919986	
P(T<=t) two-tail	0,000906		P(T<=t) two-tail	0,000102	
t Critical two-tail	4,302653		t Critical two-tail	4,302653	

	Etanol 70%	Aquades		Etanol 30%	Etil Asetat
Mean	31,806	17,619	Mean	17,79267	15,387
Variance	0,003675	0,328675	Variance	0,530816	0,078732
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	2		df	3	
t Stat	42,62392		t Stat	5,336936	
P(T<=t) one-tail	0,000275		P(T<=t) one-tail	0,00643	
t Critical one-tail	2,919986		t Critical one-tail	2,353363	
P(T<=t) two-tail	0,00055		P(T<=t) two-tail	0,01286	
t Critical two-tail	4,302653		t Critical two-tail	3,182446	

	Etanol 30%	Aquades		Etil Asetat	Aquades
Mean	17,79267	17,619	Mean	15,387	17,619
Variance	0,530816	0,328675	Variance	0,078732	0,328675
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	3	
t Stat	0,324456		t Stat	-6,05676	
P(T<=t) one-tail	0,380926		P(T<=t) one-tail	0,004515	
t Critical one-tail	2,131847		t Critical one-tail	2,353363	
P(T<=t) two-tail	0,761851		P(T<=t) two-tail	0,00903	
t Critical two-tail	2,776445		t Critical two-tail	3,182446	

BONE

Cairan Penyari	Etanol 96%	Etanol 70%	Etanol 30%	Etil Asetat	Aquades
Replikas 1	34,13	30,592	36,315	31,903	42,974
Replikasi 2	32,569	29,759	36,107	30,592	42,143
Replikasi 3	32,985	29,964	37,668	32,881	42,246

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Etanol 96%	3	99,684	33,228	0,653467
Etanol 70%	3	90,315	30,105	0,188383
Etanol 30%	3	110,09	36,69667	0,718432
Etil Asetat	3	95,376	31,792	1,319121
Aquades	3	127,363	42,45433	0,205192

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	287,1996	4	71,7999	116,3846	2,42E-08	3,47805
Within Groups	6,169191	10	0,616919			
Total	293,3688	14				

Hasil Uji *t*-Test: Two-Sample Assuming Unequal Variances

	Etanol 96%	Etanol 70%		Etanol 96%	Etanol 30%
Mean	33,228	30,105	Mean	33,228	36,69667
Variance	0,653467	0,188383	Variance	0,653467	0,718432
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	3		df	4	
t Stat	5,895427		t Stat	-5,12935	
P(T<=t) one-tail	0,004871		P(T<=t) one-tail	0,003421	
t Critical one-tail	2,353363		t Critical one-tail	2,131847	
P(T<=t) two-tail	0,009743		P(T<=t) two-tail	0,006842	
t Critical two-tail	3,182446		t Critical two-tail	2,776445	

	Etanol 96%	Etil Asetat		Etanol 96%	Aquades
Mean	33,228	31,792	Mean	33,228	42,45433
Variance	0,653467	1,319121	Variance	0,653467	0,205192
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	3	
t Stat	1,770912		t Stat	-17,2456	
P(T<=t) one-tail	0,075639		P(T<=t) one-tail	0,000212	
t Critical one-tail	2,131847		t Critical one-tail	2,353363	
P(T<=t) two-tail	0,151279		P(T<=t) two-tail	0,000425	
t Critical two-tail	2,776445		t Critical two-tail	3,182446	

	Etanol 70%	Etanol 30%		Etanol 70%	Etil Asetat
Mean	30,105	36,69667	Mean	30,105	31,792
Variance	0,188383	0,718432	Variance	0,188383	1,319121
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	3		df	3	
t Stat	-11,9894		t Stat	-2,37983	
P(T<=t) one-tail	0,000624		P(T<=t) one-tail	0,048816	
t Critical one-tail	2,353363		t Critical one-tail	2,353363	
P(T<=t) two-tail	0,001248		P(T<=t) two-tail	0,097633	
t Critical two-tail	3,182446		t Critical two-tail	3,182446	

	Etanol 70%	Aquades		Etanol 30%	Etil Asetat
Mean	30,105	42,45433	Mean	36,69667	31,792
Variance	0,188383	0,205192	Variance	0,718432	1,319121
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	4	
t Stat	-34,095		t Stat	5,951352	
P(T<=t) one-tail	2,21E-06		P(T<=t) one-tail	0,002	
t Critical one-tail	2,131847		t Critical one-tail	2,131847	
P(T<=t) two-tail	4,41E-06		P(T<=t) two-tail	0,004	
t Critical two-tail	2,776445		t Critical two-tail	2,776445	

	Etanol 30%	Aquades		Etil Asetat	Aquades
Mean	36,69667	42,45433	Mean	31,792	42,45433
Variance	0,718432	0,205192	Variance	1,319121	0,205192
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	3		df	3	
t Stat	-10,3767		t Stat	-14,9581	
P(T<=t) one-tail	0,000955		P(T<=t) one-tail	0,000324	
t Critical one-tail	2,353363		t Critical one-tail	2,353363	
P(T<=t) two-tail	0,00191		P(T<=t) two-tail	0,000648	
t Critical two-tail	3,182446		t Critical two-tail	3,182446	

BULUKUMBA

Cairan penyari	Etanol 96%	Etanol 70%	Etanol 30%	Etil Asetat	Aquades
Replikasi 1	26,118	44,223	40,893	25,389	50,675
Replikasi 2	25,701	42,246	40,893	22,891	50,467
Replikasi 3	27,678	42,038	41,205	24,765	52,652

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Etanol 96%	3	79,497	26,499	1,086003
Etanol 70%	3	128,507	42,83567	1,454336
Etanol 30%	3	122,991	40,997	0,032448
Etil Asetat	3	73,045	24,34833	1,690209

Aquades 3 153,794 51,26467 1,454336

Hasil Uji *t*-Test: Two-Sample Assuming Unequal Variances

	Etanol 96%	Etanol 70%		Etanol 96%	Etanol 30%
Mean	26,499	42,83567	Mean	26,499	40,997
Variance	1,086003	1,454336	Variance	1,086003	0,032448
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	2	
t Stat	-17,7533		t Stat	-23,7443	
P(T<=t) one-tail	2,96E-05		P(T<=t) one-tail	0,000884	
t Critical one-tail	2,131847		t Critical one-tail	2,919986	
P(T<=t) two-tail	5,91E-05		P(T<=t) two-tail	0,001769	
t Critical two-tail	2,776445		t Critical two-tail	4,302653	

	Etanol 96%	Etil Asetat		Etanol 96%	Aquades
Mean	26,499	24,34833	Mean	26,499	51,26467
Variance	1,086003	1,690209	Variance	1,086003	1,454336
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	4	
t Stat	2,235668		t Stat	-26,9132	
P(T<=t) one-tail	0,044524		P(T<=t) one-tail	5,67E-06	
t Critical one-tail	2,131847		t Critical one-tail	2,131847	
P(T<=t) two-tail	0,089049		P(T<=t) two-tail	1,13E-05	
t Critical two-tail	2,776445		t Critical two-tail	2,776445	

	Etanol 70%	Etanol 30%		Etanol 70%	Etil Asetat
Mean	42,83567	40,997	Mean	42,83567	24,34833
Variance	1,454336	0,032448	Variance	1,454336	1,690209
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	2		df	4	
t Stat	2,611798		t Stat	18,05743	
P(T<=t) one-tail	0,060318		P(T<=t) one-tail	2,76E-05	
t Critical one-tail	2,919986		t Critical one-tail	2,131847	

P(T<=t) two-tail	0,120636		P(T<=t) two-tail	5,53E-05
t Critical two-tail	4,302653		t Critical two-tail	2,776445

	Etanol 70%	Aquades		Etanol 30%	Etil Asetat
Mean	42,83567	51,26467	Mean	40,997	24,34833
Variance	1,454336	1,454336	Variance	0,032448	1,690209
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	2	
t Stat	-8,56031		t Stat	21,97054	
P(T<=t) one-tail	0,000511		P(T<=t) one-tail	0,001033	
t Critical one-tail	2,131847		t Critical one-tail	2,919986	
P(T<=t) two-tail	0,001023		P(T<=t) two-tail	0,002065	
t Critical two-tail	2,776445		t Critical two-tail	4,302653	

	Etanol 30%	Aquades		Etil Asetat	Aquades
Mean	40,997	51,26467	Mean	24,34833	51,26467
Variance	0,032448	1,454336	Variance	1,690209	1,454336
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	2		df	4	
t Stat	-14,5851		t Stat	-26,2904	
P(T<=t) one-tail	0,002334		P(T<=t) one-tail	6,22E-06	
t Critical one-tail	2,919986		t Critical one-tail	2,131847	
P(T<=t) two-tail	0,004668		P(T<=t) two-tail	1,24E-05	
t Critical two-tail	4,302653		t Critical two-tail	2,776445	

MASAMBA

Cairan Penyari	Etanol 96%	Etanol 70%	Etanol 30%	Etil Asetat	Aquades
Replikasi 1	20,811	23,21	39,124	16,336	51,404
Replikasi 2	22,579	22,059	40,997	19,041	51,299
Replikasi 3	20,914	24,244	41,414	18,937	54,005

Anova: Single Factor**SUMMARY**

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Etanol 96%	3	64,304	21,43467	0,984776
Etanol 70%	3	69,513	23,171	1,194697
Etanol 30%	3	121,535	40,51167	1,487686
Etil Asetat	3	54,314	18,10467	2,34884
Aquades	3	156,708	52,236	2,349777

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2581,428	4	645,357	385,7125	6,61E-11	3,47805
Within Groups	16,73155	10	1,673155			
Total	2598,16	14				

Hasil Uji t-Test: Two-Sample Assuming Unequal Variances

	Etanol 96%	Etanol 70%		Etanol 96%	Etanol 30%
Mean	21,43467	23,171	Mean	21,43467	40,51167
Variance	0,984776	1,194697	Variance	0,984776	1,487686
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	4	
t Stat	-2,03713		t Stat	-21,0139	
P(T<=t) one-tail	0,055653		P(T<=t) one-tail	1,52E-05	
t Critical one-tail	2,131847		t Critical one-tail	2,131847	
P(T<=t) two-tail	0,111307		P(T<=t) two-tail	3,03E-05	
t Critical two-tail	2,776445		t Critical two-tail	2,776445	

	Etanol 96%	Etil Asetat		Etanol 96%	Aquades
Mean	21,43467	18,10467	Mean	21,43467	52,236
Variance	0,984776	2,34884	Variance	0,984776	2,349777
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	3		df	3	
t Stat	3,158981		t Stat	-29,2154	

P(T<=t) one-tail	0,025456		P(T<=t) one-tail	4,4E-05	
t Critical one-tail	2,353363		t Critical one-tail	2,353363	
P(T<=t) two-tail	0,050911		P(T<=t) two-tail	8,81E-05	
t Critical two-tail	3,182446		t Critical two-tail	3,182446	

	Etanol 70%	Etanol 30%		Etanol 70%	Etil Asetat
Mean	23,171	40,51167	Mean	23,171	18,10467
Variance	1,194697	1,487686	Variance	1,194697	2,34884
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	4	
t Stat	-18,3386		t Stat	4,661609	
P(T<=t) one-tail	2,6E-05		P(T<=t) one-tail	0,004789	
t Critical one-tail	2,131847		t Critical one-tail	2,131847	
P(T<=t) two-tail	5,2E-05		P(T<=t) two-tail	0,009578	
t Critical two-tail	2,776445		t Critical two-tail	2,776445	

	Etanol 70%	Aquades		Etanol 30%	Etil Asetat
Mean	23,171	52,236	Mean	40,51167	18,10467
Variance	1,194697	2,349777	Variance	1,487686	2,34884
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	4	
t Stat	-26,7396		t Stat	19,81414	
P(T<=t) one-tail	5,81E-06		P(T<=t) one-tail	1,91E-05	
t Critical one-tail	2,131847		t Critical one-tail	2,131847	
P(T<=t) two-tail	1,16E-05		P(T<=t) two-tail	3,83E-05	
t Critical two-tail	2,776445		t Critical two-tail	2,776445	

	Etanol 30%	Aquades		Etil Asetat	Aquades
Mean	40,51167	52,236	Mean	18,10467	52,236
Variance	1,487686	2,349777	Variance	2,34884	2,349777
Observations	3	3	Observations	3	3
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	4		df	4	
t Stat	-10,3664		t Stat	-27,2727	

P(T<=t) one-tail	0,000244	P(T<=t) one-tail	5,37E-06
t Critical one-tail	2,131847	t Critical one-tail	2,131847
P(T<=t) two-tail	0,000489	P(T<=t) two-tail	1,07E-05
t Critical two-tail	2,776445	t Critical two-tail	2,776445

Lampiran 12. Hasil Statistik Kadar Katekin Menggunakan Anova: *Two-factor Without Replication*

Lokasi Pengambilan	Etanol 96%	Etanol 70%	Etanol 30%	Etil Asetat	Aquadest
Sidrap	3,291	8,06	7,453	8,408	7,645
Bone	8,949	5,429	3,383	8,039	10,887
Bulukumba	3,821	8,344	9,291	7,763	6,663
Masamba	3,111	2,271	7,301	6,487	6,039

Anova: Two-Factor Without Replication

SUMMARY	Count	Sum	Average	Variance
Sidrap	5	34,857	6,9714	4,369972
Bone	5	36,687	7,3374	8,742107
Bulukumba	5	35,882	7,1764	4,425303
Masamba	5	25,209	5,0418	4,898079
Etanol 96%	4	19,172	4,793	7,767416
Etanol 70%	4	24,104	6,026	7,988905
Etanol 30%	4	27,428	6,857	6,181795
Etil Asetat	4	30,697	7,67425	0,69629
Aquadest	4	31,234	7,8085	4,649065

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Lokasi Pengambilan	17,18944	3	5,729814	1,063358	0,400896	3,490295
Cairan Penyari	25,08088	4	6,270219	1,163648	0,37455	3,259167
Error	64,66097	12	5,388414			
Total	106,9313	19				

Lampiran 13. Perhitungan Kadar Polifenol Total Ekstrak Kulit Buah Pinang dari beberapa Daerah Menggunakan Spektrofotometer UV-Vis

y = absorban

x = konsentrasi senyawa terlarut ($\mu\text{g/mL}$)

v = total larutan pengenceran (mL)

fp = faktor pengenceran

g = jumlah ekstrak yang ditimbang (mg)

Persamaan regresi: $y = 0,00801x - 0,02199$

a. Daerah SIDRAP

- Pelarut etanol 96%

$y = 0,00801x - 0,02199$

$0,265 = 0,00801x - 0,02199$

$0,265 + 0,02199 = 0,00801x$

$$x = \frac{0,28699}{0,00801}$$

$x = 35,829 \mu\text{g/mL}$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{35,829 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 29,863 \mu\text{g/mg}$$

- Pelarut etanol 70%

$y = 0,00801x - 0,02199$

$0,450 = 0,00801x - 0,02199$

$0,450 + 0,02199 = 0,00801x$

$$x = \frac{0,47199}{0,00801}$$

$x = 58,925 \mu\text{g/mL}$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{58,925 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 49,113 \text{ } \mu\text{g/mg} \end{aligned}$$

- Pelarut etanol 30%

$$y = 0,00801x - 0,02199$$

$$0,302 = 0,00801x - 0,02199$$

$$0,302 + 0,02199 = 0,00801x$$

$$x = \frac{0,32399}{0,00801}$$

$$x = 40,448 \text{ } \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{40,448 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 33,713 \text{ } \mu\text{g/mg} \end{aligned}$$

- Pelarut etil asetat

$$y = 0,00801x - 0,02199$$

$$0,173 = 0,00801x - 0,02199$$

$$0,173 + 0,02199 = 0,00801x$$

$$x = \frac{0,19499}{0,00801}$$

$$x = 24,343 \text{ } \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{24,343 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 20,290 \mu\text{g/mg}$$

- Pelarut aquades

$$y = 0,00801x - 0,02199$$

$$0,170 = 0,00801x - 0,02199$$

$$0,170 + 0,02199 = 0,00801x$$

$$x = \frac{0,19199}{0,00801}$$

$$x = 23,969 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{23,969 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 19,978 \mu\text{g/mg}$$

b. Daerah BONE

- Pelarut etanol 96%

$$y = 0,00801x - 0,02199$$

$$0,297 = 0,00801x - 0,02199$$

$$0,297 + 0,02199 = 0,00801x$$

$$x = \frac{0,31899}{0,00801}$$

$$x = 39,824 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{39,824 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 33,193 \mu\text{g/mg}$$

- Pelarut etanol 70%

$$y = 0,00801x - 0,02199$$

$$0,275 = 0,00801x - 0,02199$$

$$0,275 + 0,02199 = 0,00801x$$

$$x = \frac{0,29699}{0,00801}$$

$$x = 37,077 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{37,077 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 30,904 \mu\text{g/mg}$$

- Pelarut etanol 30%

$$y = 0,00801x - 0,02199$$

$$0,331 = 0,00801x - 0,02199$$

$$0,331 + 0,02199 = 0,00801x$$

$$x = \frac{0,35299}{0,00801}$$

$$x = 44,069 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{44,069 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 36,732 \mu\text{g/mg}$$

- Pelarut etil asetat

$$y = 0,00801x - 0,02199$$

$$0,284 = 0,00801x - 0,02199$$

$$0,284 + 0,02199 = 0,00801x$$

$$x = \frac{0,30599}{0,00801}$$

$$x = 38,201 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{38,201 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 31,841 \mu\text{g/mg}$$

- Pelarut aquades

$$y = 0,00801x - 0,02199$$

$$0,386 = 0,00801x - 0,02199$$

$$0,386 + 0,02199 = 0,00801x$$

$$x = \frac{0,40799}{0,00801}$$

$$x = 50,935 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{50,935 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 42,454 \mu\text{g/mg}$$

c. Daerah BULUKUMBA

- Pelarut etanol 96%

$$y = 0,00801x - 0,02199$$

$$0,233 = 0,00801x - 0,02199$$

$$0,233 + 0,02199 = 0,00801x$$

$$x = \frac{0,25499}{0,00801}$$

$$x = 31,834 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{31,834 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 68,209 \mu\text{g/mg}$$

- Pelarut etanol 70%

$$y = 0,00801x - 0,02199$$

$$0,390 = 0,00801x - 0,02199$$

$$0,390 + 0,02199 = 0,00801x$$

$$x = \frac{0,41199}{0,00801}$$

$$x = 51,434 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{51,434 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 42,870 \mu\text{g/mg}$$

- Pelarut etanol 30%

$$y = 0,00801x - 0,02199$$

$$0,372 = 0,00801x - 0,02199$$

$$0,372 + 0,02199 = 0,00801x$$

$$x = \frac{0,39399}{0,00801}$$

$$x = 49,187 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{49,187 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 40,997 \text{ } \mu\text{g/mg} \end{aligned}$$

- Pelarut etil asetat

$$y = 0,00801x - 0,02199$$

$$0,212 = 0,00801x - 0,02199$$

$$0,212 + 0,02199 = 0,00801x$$

$$x = \frac{0,23399}{0,00801}$$

$$x = 29,212 \text{ } \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{29,212 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 24,348 \text{ } \mu\text{g/mg} \end{aligned}$$

- Pelarut aquades

$$y = 0,00801x - 0,02199$$

$$0,471 = 0,00801x - 0,02199$$

$$0,471 + 0,02199 = 0,00801x$$

$$x = \frac{0,49299}{0,00801}$$

$$x = 61,547 \text{ } \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{61,547 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 51,299 \mu\text{g/mg}$$

d. Daerah MASAMBA

- Pelarut etanol 96%

$$y = 0,00801x - 0,02199$$

$$0,177 = 0,00801x - 0,02199$$

$$0,177 + 0,02199 = 0,00801x$$

$$x = \frac{0,19899}{0,00801}$$

$$x = 24,843 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\text{Kadar polifenol total} = \frac{24,843 \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}}$$

$$= 20,707 \mu\text{g/mg}$$

- Pelarut etanol 70%

$$y = 0,00801x - 0,02199$$

$$0,201 = 0,00801x - 0,02199$$

$$0,201 + 0,02199 = 0,00801x$$

$$x = \frac{0,22299}{0,00801}$$

$$x = 27,839 \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{27,839 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 23,204 \text{ } \mu\text{g/mg} \end{aligned}$$

- Pelarut etanol 30%

$$y = 0,00801x - 0,02199$$

$$0,367 = 0,00801x - 0,02199$$

$$0,367 + 0,02199 = 0,00801x$$

$$x = \frac{0,38899}{0,00801}$$

$$x = 48,563 \text{ } \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{48,563 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 40,477 \text{ } \mu\text{g/mg} \end{aligned}$$

- Pelarut etil asetat

$$y = 0,00801x - 0,02199$$

$$0,152 = 0,00801x - 0,02199$$

$$0,152 + 0,02199 = 0,00801x$$

$$x = \frac{0,17399}{0,00801}$$

$$x = 21,722 \text{ } \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{21,722 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 18,105 \text{ } \mu\text{g/mg} \end{aligned}$$

- Pelarut aquades

$$y = 0,00801x - 0,02199$$

$$0,48 = 0,00801x - 0,02199$$

$$0,48 + 0,02199 = 0,00801x$$

$$x = \frac{0,50199}{0,00801}$$

$$x = 62,670 \text{ } \mu\text{g/mL}$$

$$\text{Kadar polifenol total} = \frac{x \times v \times fp}{g}$$

$$\text{Faktor pengenceran} = \frac{\text{Total larutan pengenceran}}{\text{Jumlah sampel yang diencerkan}}$$

$$\text{Faktor pengenceran} = \frac{5 \text{ mL}}{3 \text{ mL}} = 1,667$$

$$\begin{aligned} \text{Kadar polifenol total} &= \frac{62,670 \text{ } \mu\text{g/mL} \times 5 \text{ mL} \times 1,667}{10 \text{ mg}} \\ &= 53,902 \text{ } \mu\text{g/mg} \end{aligned}$$

Lampiran 14. Perhitungan Kadar Katekin Ekstrak Kulit Buah Pinang dari Beberapa Daerah Menggunakan Densitometer

$$y = \text{AUC}$$

x = konsentrasi senyawa terlarut ($\mu\text{g/mL}$)

v = volume larutan sampel (mL)

fp = faktor pengenceran

g = jumlah ekstrak yang ditimbang (mg)

$$\text{Faktor pengenceran} = \frac{1 \text{ mL}}{1 \text{ mL}} = 1$$

$$\text{Persamaan regresi : } y = 28,348x - 764,04$$

a. Daerah Sidrap

- Pelarut etanol 96%

$$y = 28,348x - 764,04$$

$$3901,46 = 28,348x - 764,04$$

$$3901,46 + 764,04 = 28,348x$$

$$x = \frac{4665,50}{28,348}$$

$$x = 164,580 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{164,580 \text{ } \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}}$$

$$= 3,291 \text{ } \mu\text{g/mL}$$

- Pelarut etanol 70%

$$y = 28,348x - 764,04$$

$$10659,74 = 28,348x - 764,04$$

$$10659,74 + 764,04 = 28,348x$$

$$x = \frac{11423,78}{28,348}$$

$$x = 402,984 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{402,984 \text{ } \mu\text{g/mL} \times 0,7 \text{ mL} \times 1}{35 \text{ mg}}$$

$$= 8,060 \text{ } \mu\text{g/mL}$$

- Pelarut etanol 30%

$$y=28,348x-764,04$$

$$9800,45=28,348x-764,04$$

$$9800,45+764,041=28,348$$

$$x = \frac{10564,491}{28,348}$$

$$x=372,671 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{372,671 \text{ } \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}}$$

$$= 7,453 \text{ } \mu\text{g/mL}$$

- Pelarut etil asetat

$$y=28,348x-764,04$$

$$11153,38=28,348x-764,04$$

$$11153,38+764,041=28,348$$

$$x = \frac{11917,421}{28,348}$$

$$x=420,397 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{1420,397 \text{ } \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}}$$

$$= 8,408 \text{ } \mu\text{g/mL}$$

- Pelarut aquades

$$y=28,348x-764,04$$

$$10072,70=28,348x-764,04$$

$$10072,70+764,041=28,348$$

$$x = \frac{10836,741}{28,348}$$

$$x=382,275 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{382,275 \text{ } \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}}$$

$$= 7,645 \text{ } \mu\text{g/mL}$$

b. Daerah Bone

-Pelarut etanol 96%

$$y=28,348x-764,04$$

$$1920,97=28,348x-764,04$$

$$1920,27+764,041=28,348$$

$$x = \frac{12,685}{28,348}$$

$$x=447,475 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{447,475 \text{ } \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}} \\ &= 8,949 \text{ } \mu\text{g/mL} \end{aligned}$$

-Pelarut etanol 70%

$$y=28,348x-764,04$$

$$5400,02=28,348x-764,04$$

$$5400,02+764,041=28,348$$

$$x = \frac{6164,06}{28,348}$$

$$x= 271,442 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{271,442 \text{ } \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}} \\ &= 5,429 \text{ } \mu\text{g/mL} \end{aligned}$$

-Pelarut etanol 30%

$$y=28,348x-764,04$$

$$4031,46=28,348x-764,04$$

$$4031,46+764,041=28,348$$

$$x = \frac{4795,501}{28,348}$$

$$x= 169,165 \text{ } \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{169,165 \text{ } \mu\text{g/mL} \times 0,7 \text{ mL} \times 1}{35 \text{ mg}} \\ &= 3,383 \text{ } \mu\text{g/mL} \end{aligned}$$

-Pelarut etil asetat

$$y=28,348x-764,04$$

$$10630,95=28,348x-764,04$$

$$10630,95+764,041=28,348x$$

$$x = \frac{11394,991}{28,348}$$

$$x= 401,968 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{401,968 \mu\text{g/mL} \times 0,7 \text{ mL} \times 1}{35 \text{ mg}} \\ &= 8,039 \mu\text{g/mL} \end{aligned}$$

-Pelarut aquades

$$y=28,348x-764,04$$

$$14667,81=28,348x-764,04$$

$$14667,81+764,041=28,348x$$

$$x = \frac{15431,851}{28,348}$$

$$x= 544,372 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{544,372 \mu\text{g/mL} \times 0,7 \text{ mL} \times 1}{35 \text{ mg}} \\ &= 10,887 \mu\text{g/mL} \end{aligned}$$

c. Daerah Bulukumba

-Pelarut etanol 96%

$$y=28,348x-764,04$$

$$4651,82=28,348x-764,04$$

$$4651,82+764,041=28,348x$$

$$x = \frac{5415,861}{28,348}$$

$$x=191,049 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{191,049 \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}} \\ &= 3,821 \mu\text{g/mL} \end{aligned}$$

-Pelarut etanol 70%

$$y=28,348x-764,04$$

$$11062,41=28,348x-764,04$$

$$11062,41+764,041=28,348$$

$$x = \frac{11826,451}{28,348}$$

$$x= 417,188 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{417,188 \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}} \\ &= 8,344 \mu\text{g/mL} \end{aligned}$$

-Pelarut etanol 30%

$$y=28,348x-764,04$$

$$12405,73=28,348x-764,04$$

$$12405,73+764,041=28,348$$

$$x = \frac{13169,771}{28,348}$$

$$x= 464,575 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{464,575 \mu\text{g/mL} \times 0,7 \text{ mL} \times 1}{35 \text{ mg}} \\ &= 9,291 \mu\text{g/mL} \end{aligned}$$

-Pelarut etil asetat

$$y=28,348x-764,04$$

$$10238,97=28,348x-764,04$$

$$10238,97+764,041=28,348$$

$$x = \frac{11003,011}{28,348}$$

$$x= 388,141 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{388,141 \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}} \\ &= 7.763 \mu\text{g/mL} \end{aligned}$$

-Pelarut aquades

$$y=28,348x-764,04$$

$$8680,70=28,348x-764,04$$

$$8680,70+764,041=28,348$$

$$x = \frac{15431,851}{28,348}$$

$$x= 333.171 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{333.171 \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}}$$

$$= 6,663 \mu\text{g/mL}$$

d. Daerah Masamba

-Pelarut etanol 96%

$$y=28,348x-764,04$$

$$3645,17=28,348x-764,04$$

$$3645,17+764,041=28,348$$

$$x = \frac{4409,211}{28,348}$$

$$x=155,539 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{155,539 \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}}$$

$$= 3,111 \mu\text{g/mL}$$

-Pelarut etanol 70%

$$y=28,348x-764,04$$

$$2455,21=28,348x-764,04$$

$$11062,41+764,041=28,348$$

$$x = \frac{3219,251}{28,348}$$

$$x= 113,562 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\text{Kadar katekin} = \frac{113,562 \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}}$$

$$= 2,271 \mu\text{g/mL}$$

-Pelarut etanol 30%

$$y=28,348x-764,04$$

$$9584,91=28,348x-764,04$$

$$9584,91+764,041=28,348$$

$$x = \frac{10348,951}{28,348}$$

$$x = 365,068 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{365,068 \mu\text{g/mL} \times 0,7 \text{ mL} \times 1}{35 \text{ mg}} \\ &= 7,301 \mu\text{g/mL} \end{aligned}$$

-Pelarut etil asetat

$$y=28,348x-764,04$$

$$8431,38=28,348x-764,04$$

$$8431,38+764,041=28,348$$

$$x = \frac{9195,421}{28,348}$$

$$x = 324,376 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{324,376 \mu\text{g/mL} \times 1 \text{ mL} \times 1}{50 \text{ mg}} \\ &= 6,487 \mu\text{g/mL} \end{aligned}$$

-Pelarut aquades

$$y=28,348x-764,04$$

$$7795,14=28,348x-764,04$$

$$7795,14+764,041=28,348$$

$$x = \frac{8559,181}{28,348}$$

$$x = 301,932 \mu\text{g/mL}$$

$$\text{Kadar katekin} = \frac{x \times v \times fp}{g}$$

$$\begin{aligned} \text{Kadar katekin} &= \frac{301,932 \mu\text{g/mL} \times 0,7 \text{ mL} \times 1}{35 \text{ mg}} \\ &= 6,039 \mu\text{g/mL} \end{aligned}$$