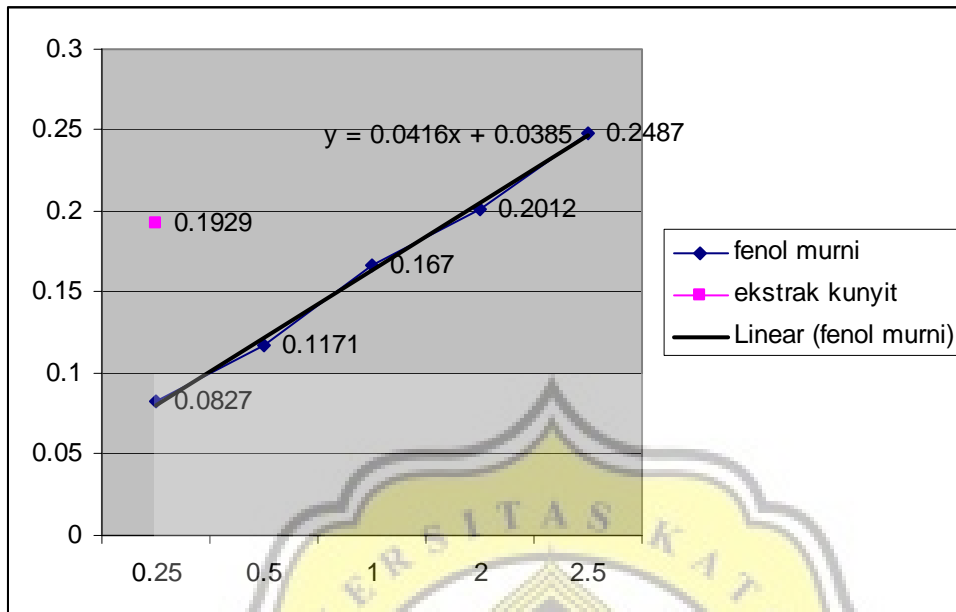
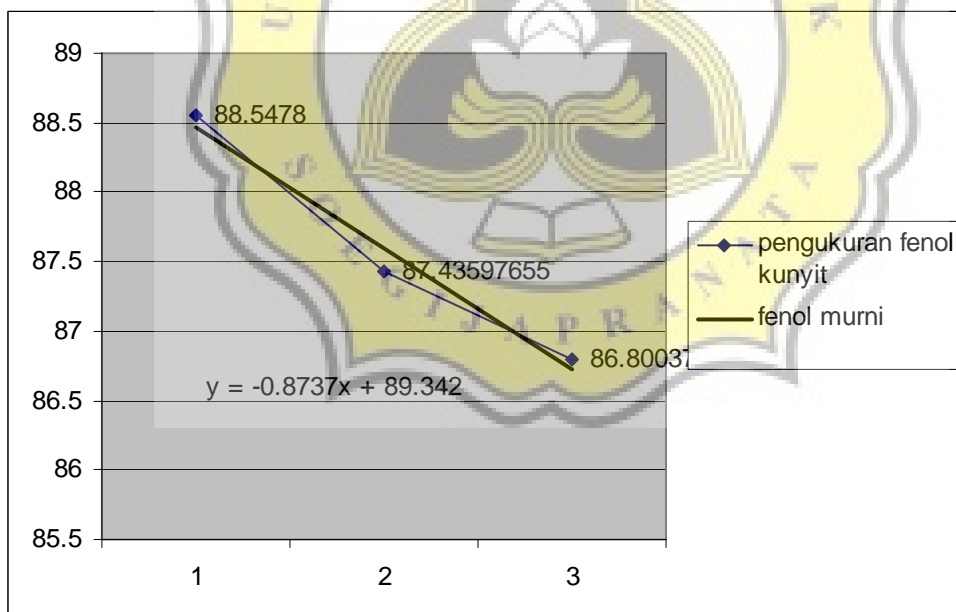


7. LAMPIRAN

Lampiran 1. pengukuran total fenol ekstrak kunyit



pengukuran aktivitas antioksidan ekstrak kunyit



Lampiran 2. Tabel hasil penelitian analisa fisik dan kimia minyak pada tiap tahap penyimpanan

	Hari	Anisidine	Peroksida (mgEq/kg)	Aktifitas antioksidan (% discolorisation)	Indek fotometrik	Viskositas (dPaS)
Kontrol	0	0.4027±0.00471 ^{e1}	2.0000±0.0000 ^{d1}	4.5950±0.03937 ^{a1}	1.8800±0.05020 ^{a1}	0.8667±0.08165 ^{a1}
	1	0.6197±0.00553 ^{e2}	3.0000±1.09545 ^{d2}	13.2450±0.03146 ^{a2}	1.9700±0.10936 ^{a2}	0.8000±0.10954 ^{a1}
	2	0.7439±0.00336 ^{e3}	4.3333±0.81650 ^{d3}	28.4350±0.02429 ^{a3}	1.9483±0.12336 ^{a12}	0.8000±0.10954 ^{a1}
	3	0.7859±0.00431 ^{e4}	5.0000±1.09545 ^{d4}	45.5500±0.03899 ^{a6}	1.9300±0.13069 ^{a12}	0.8000±0.10954 ^{a1}
	4	1.5730±0.00513 ^{e5}	6.0000±0.0000 ^{d5}	55.6467±0.02422 ^{a9}	1.9467±0.11639 ^{a12}	0.8333±0.10328 ^{a1}
	5	1.7775±0.01441 ^{e6}	6.6667±1.03280 ^{d6}	60.6083±0.00408 ^{a11}	1.9633±0.11742 ^{a12}	0.8000±0.10954 ^{a1}
	6	2.6114±0.00799 ^{e7}	7.6667±0.81650 ^{d78}	38.3317±0.03189 ^{a12}	1.9167±0.10764 ^{a12}	0.7667±0.10328 ^{a1}
	7	2.2760±0.00265 ^{e8}	8.0000±0.0000 ^{d8}	56.5150±0.16343 ^{a10}	2.0083±0.12937 ^{a12}	0.8667±0.08165 ^{a1}
	8	2.6449±0.00507 ^{e9}	7.0000±1.09545 ^{d67}	37.4083±0.25553 ^{a5}	1.900±0.07694 ^{a12}	0.8333±0.10328 ^{a1}
	9	2.9154±0.00133 ^{e10}	6.3333±0.81650 ^{d5}	32.6133±0.31709 ^{a3}	1.9483±0.08010 ^{a12}	0.8667±0.08165 ^{a1}
	10	4.0934±0.00239 ^{e11}	5.3333±1.03280 ^{d4}	37.3833±0.33839 ^{a4}	1.9750±0.13293 ^{a12}	0.8667±0.08165 ^{a1}
	11	5.0036±0.04181 ^{e12}	4.0000±0.0000 ^{d3}	47.4650±0.15136 ^{a7}	1.9133±0.10558 ^{a12}	0.8000±0.10954 ^{a1}
12	3.9948±0.00546 ^{e13}	2.6667±1.03280 ^{d12}	49.7700±0.13550 ^{a8}	1.9800±0.12377 ^{a12}	0.8256±0.10328 ^{a1}	
BHA	0	0.3997±0.00267 ^{c1}	2.0000±0.00000 ^{c1}	43.4733±0.06154 ^{b1}	2.0483±2.0483 ^{b1}	0.9333±0.05164 ^{b1}
	1	0.4725±0.00395 ^{c2}	2.3333±0.81650 ^{c2}	47.8417±0.03371 ^{b2}	2.1367±2.1367 ^{b2}	0.9500±0.05477 ^{b1}
	2	0.5328±0.00652 ^{c3}	3.3333±1.03280 ^{e3}	51.8117±0.09538 ^{b3}	2.1067±2.1067 ^{b12}	0.9333±0.05164 ^{b1}
	3	0.4894±0.00567 ^{c4}	4.0000±0.00000 ^{c4}	58.7250±0.01643 ^{b6}	2.1233±2.1233 ^{b12}	0.9167±0.04082 ^{b1}
	4	0.7142±0.00321 ^{c5}	4.6667±1.03280 ^{c5}	61.4533±0.03386 ^{b9}	2.0850±2.0850 ^{b12}	0.9500±0.05477 ^{b1}
	5	0.9144±0.00826 ^{c6}	5.6667±0.81650 ^{c6}	69.8200±0.31458 ^{b11}	2.0800±2.0800 ^{b12}	0.9500±0.05477 ^{b1}
	6	0.9750±0.00315 ^{c7}	6.0000±0.00000 ^{c78}	77.2483±0.03061 ^{b12}	2.1600±0.1600 ^{b12}	0.9333±0.05164 ^{b1}
	7	1.4137±0.00281 ^{c8}	6.6667±1.03280 ^{c8}	64.4167±0.26447 ^{b10}	2.1167±0.1167 ^{b12}	0.9167±0.04082 ^{b1}
	8	1.6336±0.00278 ^{c9}	6.0000±0.00000 ^{c67}	63.3550±0.31905 ^{b5}	2.0850±0.0850 ^{b12}	0.9333±0.05164 ^{b1}
	9	1.7838±0.00231 ^{c10}	5.0000±1.09545 ^{c5}	52.5150±0.17433 ^{b3}	2.1233±0.1233 ^{b12}	0.9333±0.05164 ^{b1}
	10	1.9059±0.00305 ^{c11}	4.0000±0.0000 ^{c4}	53.3283±0.21885 ^{b4}	2.1033±2.1033 ^{b12}	0.9167±0.04082 ^{b1}
	11	1.9828±0.00392 ^{c12}	3.3333±1.03280 ^{c3}	62.3383±0.35136 ^{b7}	2.1067±2.1067 ^{b12}	0.9500±0.05477 ^{b1}
	12	2.2460±0.00310 ^{c13}	2.3333±0.81650 ^{c12}	60.6567±0.02733 ^{b8}	2.1267±2.1267 ^{b12}	0.9333±0.05164 ^{b1}

	Hari	Anisidine	Peroksida (mgEq/kg)	Aktifitas antioksidan (% discolorisation)	Indek fotometrik	Viskositas (dPaS)
500 ppm	0	0.3136±0.00394 ^{d1}	2.0000±0.00000 ^{c1}	27.8033±0.11860 ^{c1}	2.6600±0.06512 ^{c1}	1.1000±0.10954 ^{c1}
	1	0.5187±0.00211 ^{d2}	2.6667±1.03280 ^{c2}	34.7167±0.01966 ^{c2}	2.7833±0.8335 ^{c2}	1.1333±0.10328 ^{c1}
	2	0.6823±0.00667 ^{d3}	3.6667±0.81650 ^{c3}	46.2900±2.44463 ^{c3}	2.6767±0.8664 ^{c12}	1.1333±0.10328 ^{c1}
	3	0.6550±0.00320 ^{d4}	4.3333±0.81650 ^{c4}	53.6967±1.33457 ^{c6}	2.7667±0.08914 ^{c12}	1.1667±0.08165 ^{c1}
	4	0.8151±0.00363 ^{d5}	4.6667±1.03280 ^{c5}	58.6483±0.27593 ^{c9}	2.7000±0.10714 ^{c12}	1.1000±0.10954 ^{c1}
	5	1.1897±0.09364 ^{d6}	6.0000±0.00000 ^{c6}	60.8483±13.47632 ^{c11}	2.7433±0.08779 ^{c12}	1.1333±0.10328 ^{c1}
	6	1.2834±0.00327 ^{d7}	6.3333±0.81650 ^{c78}	60.6300±26.20465 ^{c12}	2.7017±0.09196 ^{c12}	1.1667±0.08165 ^{c1}
	7	1.9641±0.00283 ^{d8}	6.6667±1.03280 ^{c8}	59.3267±0.23338 ^{c10}	2.7417±0.10439 ^{c12}	1.1667±0.08165 ^{c1}
	8	2.4235±0.00797 ^{d9}	6.3333±0.81650 ^{c67}	42.7000±0.10296 ^{c5}	2.7100±0.05138 ^{c12}	1.1000±0.10954 ^{c1}
	9	2.3854±0.00334 ^{d10}	5.0000±1.09545 ^{c5}	44.2233±0.30078 ^{c4}	2.6933±0.09114 ^{c12}	1.1333±0.10328 ^{c1}
	10	2.5545±0.00348 ^{d11}	4.3333±0.81650 ^{c4}	46.1350±4.40224 ^{c3}	2.7500±0.10040 ^{c12}	1.1333±0.10328 ^{c1}
	11	2.9240±0.00340 ^{d12}	3.3333±1.03280 ^{c3}	49.5433±0.24180 ^{c7}	2.7433±0.08779 ^{c12}	1.1333±0.10328 ^{c1}
	12	3.1756±0.00337 ^{d13}	2.3333±0.81650 ^{c12}	49.5433±0.24180 ^{c8}	2.7233±0.06154 ^{c12}	1.1000±0.10954 ^{c1}
800 ppm	0	0.2900±0.00138 ^{b1}	2.0000±0.00000 ^{b1}	41.6000±0.07266 ^{c1}	3.4733±0.07866 ^{d1}	1.3667±0.10328 ^{d1}
	1	0.5166±0.00266 ^{b2}	2.3333±0.81650 ^{b2}	45.5250±0.03332 ^{c2}	3.6517±0.10907 ^{d2}	1.4000±0.10954 ^{d1}
	2	0.6174±0.00429 ^{b3}	2.6667±1.03280 ^{b3}	53.8217±0.11232 ^{c3}	3.6083±0.14932 ^{d12}	1.3667±0.10328 ^{d1}
	3	0.6845±0.00586 ^{b4}	3.6667±0.81650 ^{b4}	56.4667±0.02875 ^{c6}	6.4733±0.07866 ^{d12}	1.3667±0.10328 ^{d1}
	4	0.6267±0.00378 ^{b5}	4.0000±0.00000 ^{b5}	64.3233±0.29378 ^{c9}	3.5233±0.13692 ^{d12}	1.3333±0.08165 ^{d1}
	5	0.9422±0.00364 ^{b6}	4.3333±0.81650 ^{b6}	74.3717±0.01722 ^{c11}	3.6017±0.12139 ^{d12}	1.3667±0.10328 ^{d1}
	6	0.9833±0.00390 ^{b7}	5.0000±1.09545 ^{b78}	80.2683±0.07574 ^{c12}	3.5383±0.16594 ^{d12}	1.3333±0.08165 ^{d1}
	7	1.2825±0.00281 ^{b8}	5.0000±1.09545 ^{b8}	63.5983±0.19374 ^{c10}	3.5383±0.10128 ^{d12}	1.4000±0.10954 ^{d1}
	8	1.7535±0.00293 ^{b9}	4.6667±1.03280 ^{b67}	57.4933±0.09933 ^{c5}	3.6167±0.07711 ^{d12}	1.3667±0.10328 ^{d1}
	9	1.6854±0.00352 ^{b10}	4.0000±0.00000 ^{b5}	53.7633±0.17535 ^{c4}	3.5383±0.16594 ^{d12}	1.3333±0.08165 ^{d1}
	10	1.8132±0.00271 ^{b11}	3.3333±1.03280 ^{b4}	55.4133±0.22322 ^{c3}	3.5417±0.09928 ^{d12}	1.3667±0.10328 ^{d1}
	11	1.9467±0.03426 ^{b12}	2.6667±1.03280 ^{b3}	58.2983±0.36913 ^{c7}	3.5833±0.16207 ^{d12}	1.4000±0.10954 ^{d1}
	12	2.1426±0.02667 ^{b13}	2.0000±0.00000 ^{b12}	57.7250±0.16682 ^{c8}	3.5517±0.10889 ^{d12}	1.3333±0.08165 ^{d1}

	Hari	Anisidine	Peroksida (mgEq/kg)	Aktifitas antioksidan (% discolorisation)	Indek fotometrik	Viskositas (dPaS)
1000 ppm	0	0.3003±0.00119 ^{a1}	2.0000±0.0000 ^{a1}	51.2633±0.11793 ^{d1}	4.4917±0.09347 ^{e1}	1.6000±0.10954 ^{e1}
	1	0.3444±0.00467 ^{a2}	2.0000±0.0000 ^{a2}	55.1433±0.02875 ^{d2}	4.4917±0.09347 ^{e2}	1.6000±0.10954 ^{e1}
	2	0.3829±0.00301 ^{a3}	2.3333±0.81650 ^{a3}	62.4517±0.04309 ^{d3}	4.4967±0.11057 ^{e12}	1.6000±0.10954 ^{e1}
	3	0.4539±0.00385 ^{a4}	3.0000±1.09545 ^{a4}	67.0450±0.07423 ^{d6}	4.5150±0.11794 ^{e12}	1.5667±0.10328 ^{e1}
	4	0.5350±0.03834 ^{a5}	3.6667±0.81650 ^{a5}	72.7467±0.19065 ^{d9}	4.4733±0.07763 ^{e12}	1.5333±0.10954 ^{e1}
	5	0.6606±0.00387 ^{a6}	4.0000±0.0000 ^{a6}	80.5300±0.09033 ^{d11}	4.4400±0.06928 ^{e12}	1.6000±0.10954 ^{e1}
	6	0.6641±0.00361 ^{a7}	4.6667±1.03280 ^{a78}	90.4667±0.33927 ^{d12}	4.5483±0.09559 ^{e12}	1.6000±0.08165 ^{e1}
	7	0.7440±0.03300 ^{a8}	4.6667±1.03280 ^{a8}	72.3317±0.30248 ^{d10}	4.4583±0.09042 ^{e12}	1.5333±0.10328 ^{e1}
	8	0.9254±0.0326 ^{a9}	4.0000±0.0000 ^{a67}	66.3517±0.04070 ^{d5}	4.5000±0.06573 ^{e12}	1.5667±0.10328 ^{e1}
	9	1.0228±0.00185 ^{a10}	3.3333±1.03280 ^{a5}	60.1633±0.25319 ^{d4}	4.5283±0.11771 ^{e12}	1.5667±0.10954 ^{e1}
	10	1.0842±0.00326 ^{a11}	3.0000±1.09545 ^{a4}	63.0450±0.01049 ^{d3}	4.5200±0.09798 ^{e12}	1.6000±0.08165 ^{e1}
	11	1.2351±0.00302 ^{a12}	2.0000±0.0000 ^{a3}	68.5667±0.25406 ^{d7}	4.4783±0.10323 ^{e12}	1.5333±0.08165 ^{e1}
	12	1.3861±0.00364 ^{a13}	2.0000±0.0000 ^{a12}	70.6250±0.10387 ^{d8}	4.4933±0.11219 ^{e12}	1.5333±0.08165 ^{e1}

Keterangan :

- Mean ± Standar Deviasi didapat dari hasil perhitungan rata-rata minyak sebanyak 2 kali ulangan.
- *Superscript* pada kolom yang sama menunjukkan beda nyata/ tidak beda nyata pada tingkat kepercayaan 95%.

Lampiran 3. Hasil Analisa Data menggunakan SPSS versi 13.0 *for windows*.

Data analisa sensoris minyak sebelum penyimpanan

Descriptive Statistics

Dependent Variable: skor

perlakuan	parameter	Mean	Std. Deviation	N
kontrol	flavor	1.8000	1.16529	20
	warna	2.0000	.86450	20
	kesukaan	3.3000	.78640	20
BHA	flavor	2.5000	.85224	20
	warna	2.7036	.61559	20
	kesukaan	3.3500	.60698	20
500 ppm	flavor	2.3000	.75394	20
	warna	2.8000	.65695	20
	kesukaan	3.3500	.96791	20
800 ppm	flavor	3.1000	.82558	20
	warna	3.6000	1.05131	20
	kesukaan	1.8500	1.08942	20
1000 ppm	flavor	3.6500	.96791	20
	warna	3.3500	.96791	20
	kesukaan	2.4000	.95145	20

Data analisa sensoris minyak setelah penyimpanan

Descriptive Statistics

Dependent Variable: skor

perlakuan	parameter	Mean	Std. Deviation	N
kontrol	flavor	1.9000	1.16529	20
	warna	3.3000	.86450	20
	kesukaan	2.2500	.78640	20
BHA	flavor	1.6000	.85224	20
	warna	3.2000	.61559	20
	kesukaan	2.5000	.60698	20
500 ppm	flavor	1.6000	.75394	20
	warna	3.3000	.65695	20
	kesukaan	2.1000	.96791	20

800 ppm	flavor	1.5500	.82558	20
	warna	3.5000	1.05131	20
	kesukaan	3.3500	1.08942	20
1000 ppm	flavor	1.9000	.96791	20
	warna	3.1000	.96791	20
	kesukaan	2.8000	.95145	20

Data analisis anisidine minyak

Between-Subjects Factors

	Value	Label	N
perlakuan	1.00	kontrol	78
	2.00	BHA	78
	3.00	500 ppm	78
	4.00	800 ppm	78
	5.00	1000 ppm	78
hari	1.00	0	30
	2.00	1	30
	3.00	2	30
	4.00	3	30
	5.00	4	30
	6.00	5	30
	7.00	6	30
	8.00	7	30
	9.00	8	30
	10.00	9	30
	11.00	10	30
	12.00	11	30
	13.00	12	30

Descriptive Statistics

Dependent Variable: anisidine

perlakuan	hari	Mean	Std. Deviation	N
kontrol	0	.4027	.00471	6
	1	.6197	.00553	6
	2	.7439	.00336	6
	3	.7859	.00431	6

	4	1.5730	.00513	6
	5	1.7775	.01441	6
	6	2.6114	.01782	6
	7	2.2760	.00265	6
	8	2.6449	.00507	6
	9	2.9154	.00133	6
	10	4.0934	.00605	6
	11	5.0036	.06205	6
	12	3.9948	.00546	6
	Total	2.2648	1.42116	78
BHA	0	.3997	.00267	6
	1	.4725	.00395	6
	2	.5328	.00652	6
	3	.4894	.00567	6
	4	.7142	.00321	6
	5	.9144	.00826	6
	6	1.6825	.00945	6
	7	1.4137	.00281	6
	8	1.6336	.00278	6
	9	1.7838	.00231	6
	10	2.8286	.00605	6
	11	2.8817	.00795	6
	12	2.2460	.00310	6
	Total	1.3841	.85487	78
500 ppm	0	.3136	.00394	6
	1	.5187	.00211	6
	2	.6823	.00667	6
	3	.6550	.00320	6
	4	.8151	.00363	6
	5	1.1897	.09364	6
	6	2.2117	.00704	6
	7	1.9641	.00283	6
	8	2.4235	.00797	6
	9	2.3854	.00334	6
	10	3.7846	.00765	6
	11	4.2463	.00795	6
	12	3.1756	.00337	6
	Total	1.8743	1.26181	78
800 ppm	0	.2900	.00138	6
	1	.5166	.00266	6
	2	.6174	.00429	6
	3	.6845	.00586	6
	4	.6267	.00378	6
	5	.9422	.00364	6
	6	1.6969	.00891	6
	7	1.2825	.00281	6
	8	1.7535	.00293	6

	9	1.6854	.00352	6
	10	2.6853	.00605	6
	11	2.8260	.05001	6
	12	2.1426	.02677	6
	Total	1.3653	.81274	78
1000 ppm	0	.3003	.00119	6
	1	.3444	.00467	6
	2	.3829	.00301	6
	3	.4539	.00385	6
	4	.5350	.03834	6
	5	.6606	.00687	6
	6	1.1475	.00945	6
	7	.7440	.03300	6
	8	.9254	.00326	6
	9	1.0228	.00185	6
	10	1.6082	.00812	6
	11	1.7929	.00795	6
	12	1.3861	.00364	6
	Total	.8695	.47961	78
Total	0	.3413	.05047	30
	1	.4944	.09075	30
	2	.5919	.12803	30
	3	.6138	.12659	30
	4	.8528	.37856	30
	5	1.0969	.38785	30
	6	1.8700	.50938	30
	7	1.5361	.54551	30
	8	1.8762	.62173	30
	9	1.9585	.65579	30
	10	3.0000	.89560	30
	11	3.3501	1.15625	30
	12	2.5890	.91934	30
	Total	1.5516	1.12455	390

Tests of Between-Subjects Effects

Dependent Variable: anisidine

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	491.834(a)	64	7.685	24422.767	.000
Intercept	938.913	1	938.913	2983880.005	.000
perlakuan	88.976	4	22.244	70692.100	.000
hari	355.788	12	29.649	94224.992	.000
perlakuan * hari	47.070	48	.981	3116.432	.000
Error	.102	325	.000		
Total	1430.850	390			

Corrected Total	491.937	389			
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a R Squared = 1.000 (Adjusted R Squared = 1.000)

Post Hoc Tests

Homogeneous Subsets

anisidine

Duncan

perlakuan	N	Subset				
		1	2	3	4	5
1000 ppm	78	.8695				
800 ppm	78		1.3653			
BHA	78			1.3841		
500 ppm	78				1.8743	
kontrol	78					2.2648
Sig.		1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .000.

a Uses Harmonic Mean Sample Size = 78.000.

b Alpha = .05.



anisidine

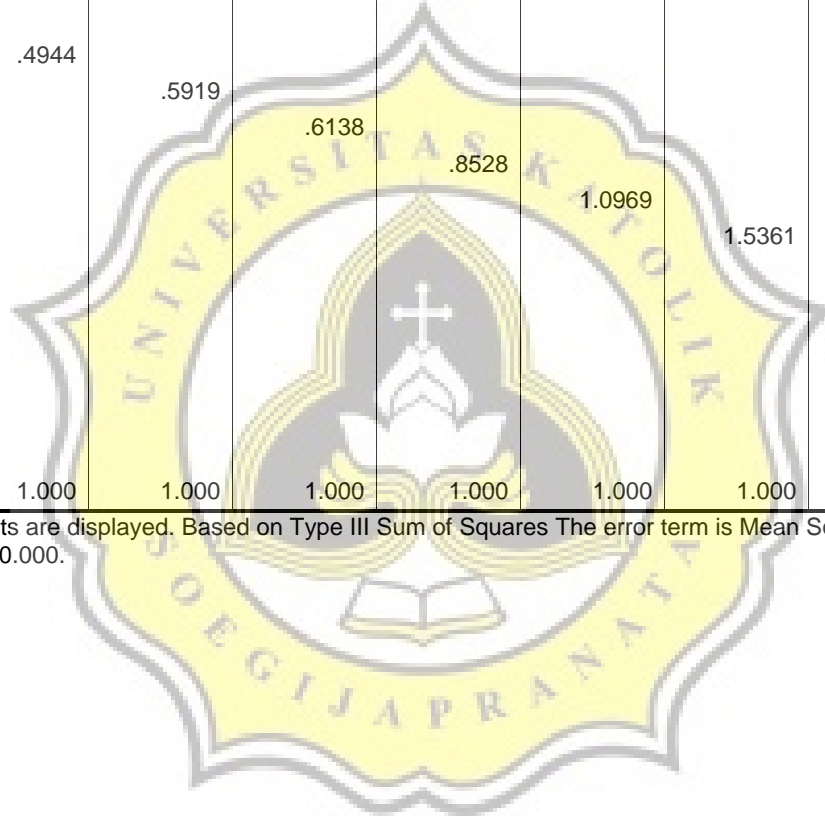
Duncan

hari	N	Subset												
		1	2	3	4	5	6	7	8	9	10	11	12	
0	30	.3413												
1	30		.4944											
2	30			.5919										
3	30				.6138									
4	30					.8528								
5	30						1.0969							
7	30							1.5361						
6	30								1.8700					
8	30								1.8762					
9	30									1.9585				
12	30										2.5890			
10	30											3.0000		
11	30												3.3000	
Sig.		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	.179	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .000.

a Uses Harmonic Mean Sample Size = 30.000.

b Alpha = .05.



Data analisis aktivitas antioksidan minyak

Between-Subjects Factors

		Value Label	N
perlakuan	1.00	kontrol	78
	2.00	BHA	78
	3.00	500 ppm	78
	4.00	800 ppm	78
	5.00	1000 ppm	78
hari	1.00	0	30
	2.00	1	30
	3.00	2	30
	4.00	3	30
	5.00	4	30
	6.00	5	30
	7.00	6	30
	8.00	7	30
	9.00	8	30
	10.00	9	30
	11.00	10	30
	12.00	11	30
	13.00	12	30

Descriptive Statistics

Dependent Variable: dpph

perlakuan	hari	Mean	Std. Deviation	N
kontrol	0	4.5950	.03937	6
	1	13.2450	.03146	6
	2	28.4350	.02429	6
	3	45.5500	.03899	6
	4	55.6467	.02422	6
	5	60.6083	.00408	6
	6	68.3317	.03189	6
	7	56.5150	.16343	6
	8	37.4083	.25553	6
	9	32.6133	.31709	6
	10	37.3833	.33839	6
	11	47.4650	.15136	6
	12	49.7700	.13550	6
	Total	41.3513	17.81881	78
BHA	0	43.4733	.06154	6
	1	47.8417	.03371	6
	2	51.8117	.09538	6
	3	58.7250	.01643	6
	4	61.4533	.03386	6

	5	69.8200	.31458	6
	6	77.2483	.03061	6
	7	64.4167	.26447	6
	8	63.3550	.31905	6
	9	52.5150	.17433	6
	10	53.3283	.21885	6
	11	62.3383	.35136	6
	12	60.6567	.02733	6
	Total	58.9987	8.87249	78
500 ppm	0	27.8033	.11860	6
	1	34.7167	.01966	6
	2	46.2900	2.44463	6
	3	53.6967	1.33457	6
	4	58.6483	.27593	6
	5	60.8483	13.47632	6
	6	60.6300	26.20465	6
	7	59.3267	.23338	6
	8	42.7000	.10296	6
	9	44.2233	.30078	6
	10	46.1350	4.40224	6
	11	49.5433	.24180	6
	12	49.5433	.24180	6
	Total	48.7773	12.40625	78
800 ppm	0	41.6000	.07266	6
	1	45.5250	.03332	6
	2	53.8217	.11232	6
	3	56.4667	.02875	6
	4	64.3233	.29378	6
	5	74.3717	.01722	6
	6	80.2683	.07574	6
	7	63.5983	.19374	6
	8	57.4933	.09933	6
	9	53.7633	.17535	6
	10	55.4133	.22322	6
	11	58.2983	.36913	6
	12	57.7250	.16682	6
	Total	58.6668	10.06182	78
1000 ppm	0	51.2633	.11793	6
	1	55.1433	.02875	6
	2	62.4517	.04309	6
	3	67.0450	.07423	6
	4	72.7467	.19065	6
	5	80.5300	.09033	6
	6	90.4667	.33927	6
	7	72.3317	.30248	6
	8	66.3517	.04070	6
	9	60.1633	.25319	6

	10	63.0450	.01049	6
	11	68.5667	.25406	6
	12	70.6250	.10387	6
	Total	67.7485	9.96970	78
Total	0	33.7470	16.70200	30
	1	39.2943	14.82725	30
	2	48.5620	11.56456	30
	3	56.2967	7.12249	30
	4	62.5637	5.95439	30
	5	69.2357	9.65429	30
	6	75.3890	15.04871	30
	7	63.2377	5.47618	30
	8	53.4617	11.63199	30
	9	48.6557	9.65624	30
	10	51.0610	9.04438	30
	11	57.2423	8.01551	30
	12	57.6640	7.94773	30
	Total	55.1085	15.23838	390

dpph

	perlakuan	N	Subset			
			1	2	3	4
Duncan(a, b)	kontrol	78	41.3513			
	500 ppm	78		48.7773		
	800 ppm	78			58.6668	
	BHA	78			58.9987	
	1000 ppm	78				67.7485
	Sig.			1.000	1.000	.577

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = 13.807.

a Uses Harmonic Mean Sample Size = 78.000.

b Alpha = .05.

dpph

	hari	N	Subset											
			1	2	3	4	5	6	7	8	9			
Duncan(0	30	33.7470											
a,b)	1	30		39.2943										
	2	30			48.5620									
	9	30			48.6557									
	10	30				51.0610								
	8	30					53.4617							
	3	30						56.2967						
	11	30						57.2423						
	12	30						57.6640						
	4	30							62.5637					
	7	30							63.2377					
	5	30								69.2357				
	6	30									75.3890			
	Sig.		1.000	1.000	.922	1.000	1.000	.181	.483	1.000	1.000			

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = 13.807.

a Uses Harmonic Mean Sample Size = 30.000.

b Alpha = .05.

Data analisis indek fotometrik minyak

Between-Subjects Factors

	Value Label	N
perlakuan	1.00 kontrol	78
	2.00 BHA	78
	3.00 500 ppm	78
	4.00 800 ppm	78
	5.00 1000 ppm	78
hari	1.00 0	30
	2.00 1	30
	3.00 2	30
	4.00 3	30
	5.00 4	30
	6.00 5	30
	7.00 6	30
	8.00 7	30
	9.00 8	30
	10.00 9	30
	11.00 10	30
	12.00 11	30
	13.00 12	30

Descriptive Statistics

Dependent Variable: indek

perlakuan	hari	Mean	Std. Deviation	N
kontrol	0	1.8800	.05020	6
	1	1.9700	.10936	6
	2	1.9483	.12336	6
	3	1.9300	.13069	6
	4	1.9467	.11639	6
	5	1.9633	.11742	6
	6	1.9167	.10764	6
	7	2.0083	.12937	6
	8	1.9000	.07694	6
	9	1.9483	.08010	6
	10	1.9750	.13293	6
	11	1.9133	.10558	6
	12	1.9800	.12377	6
	Total	1.9446	.10733	78
BHA	0	2.0483	.04750	6
	1	2.1367	.02944	6
	2	2.1067	.11003	6
	3	2.1233	.10539	6
	4	2.0850	.05648	6

	5	2.0800	.06325	6
	6	2.1600	.07376	6
	7	2.1167	.04633	6
	8	2.0850	.06804	6
	9	2.1233	.09832	6
	10	2.1033	.05854	6
	11	2.1067	.11708	6
	12	2.1267	.03011	6
	Total	2.1078	.07441	78
500 ppm	0	2.6600	.06512	6
	1	2.7833	.08335	6
	2	2.6767	.08664	6
	3	2.7667	.08914	6
	4	2.7000	.10714	6
	5	2.7433	.08779	6
	6	2.7017	.09196	6
	7	2.7417	.10439	6
	8	2.7100	.05138	6
	9	2.6933	.09114	6
	10	2.7500	.10040	6
	11	2.7433	.08779	6
	12	2.7233	.06154	6
	Total	2.7226	.08695	78
800 ppm	0	3.4733	.07866	6
	1	3.6517	.10907	6
	2	3.6083	.14932	6
	3	3.4733	.07866	6
	4	3.5233	.13692	6
	5	3.6017	.12139	6
	6	3.5383	.16594	6
	7	3.5383	.10128	6
	8	3.6167	.07711	6
	9	3.5383	.16594	6
	10	3.5417	.09928	6
	11	3.5833	.16207	6
	12	3.5517	.10889	6
	Total	3.5569	.12496	78
1000 ppm	0	4.4917	.09347	6
	1	4.4917	.09347	6
	2	4.4967	.11057	6
	3	4.5150	.11794	6
	4	4.4733	.07763	6
	5	4.4400	.06928	6
	6	4.5483	.09559	6
	7	4.4583	.09042	6
	8	4.5000	.06573	6
	9	4.5283	.11771	6

	10	4.5200	.09798	6
	11	4.4783	.10323	6
	12	4.4933	.11219	6
	Total	4.4950	.09361	78
Total	0	2.9107	.98662	30
	1	3.0067	.96879	30
	2	2.9673	.98308	30
	3	2.9617	.96776	30
	4	2.9457	.96605	30
	5	2.9657	.95998	30
	6	2.9730	.98648	30
	7	2.9727	.94139	30
	8	2.9623	.99385	30
	9	2.9663	.98015	30
	10	2.9780	.97139	30
	11	2.9650	.97792	30
	12	2.9750	.95931	30
	Total	2.9654	.95772	390

Tests of Between-Subjects Effects

Dependent Variable: indeks

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	353.539(a)	64	5.524	550.597	.000
Intercept	3429.467	1	3429.467	341824.844	.000
perlakuan	353.027	4	88.257	8796.807	.000
hari	.164	12	.014	1.365	.181
perlakuan * hari	.347	48	.007	.721	.916
Error	3.261	325	.010		
Total	3786.267	390			
Corrected Total	356.799	389			

a. R Squared = .991 (Adjusted R Squared = .989)

indeks

	perlakuan	N	Subset				
			1	2	3	4	5
Duncan(a, b)	kontrol	78	1.9446				
	BHA	78		2.1078			
	500 ppm	78			2.7226		
	800 ppm	78				3.5569	
	1000 ppm	78					4.4950
	Sig.			1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .010.

a. Uses Harmonic Mean Sample Size = 78.000.

b. Alpha = .05.

indek

	hari	N	Subset	
			1	2
Duncan(a,b)	0	30	2.9107	
	4	30	2.9457	2.9457
	3	30	2.9617	2.9617
	8	30	2.9623	2.9623
	11	30	2.9650	2.9650
	5	30	2.9657	2.9657
	9	30	2.9663	2.9663
	2	30	2.9673	2.9673
	7	30		2.9727
	6	30		2.9730
	12	30		2.9750
	10	30		2.9780
	1	30		3.0067
	Sig.		.062	.051

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .010.

a Uses Harmonic Mean Sample Size = 30.000.

b Alpha = .05.

Data analisis peroksida minyak

Between-Subjects Factors

		Value Label	N
perlakuan	1.00	kontrol	78
	2.00	BHA	78
	3.00	500 ppm	78
	4.00	800 ppm	78
	5.00	1000 ppm	78
hari	1.00	0	30
	2.00	1	30
	3.00	2	30
	4.00	3	30
	5.00	4	30
	6.00	5	30
	7.00	6	30
	8.00	7	30
	9.00	8	30
	10.00	9	30
	11.00	10	30
	12.00	11	30
	13.00	12	30

Descriptive Statistics

Dependent Variable: peroksida

perlakuan	hari	Mean	Std. Deviation	N
kontrol	0	2.0000	.00000	6
	1	3.0000	1.09545	6
	2	4.3333	.81650	6
	3	5.0000	1.09545	6
	4	6.0000	.00000	6
	5	6.6667	1.03280	6
	6	7.6667	.81650	6
	7	8.0000	.00000	6
	8	7.0000	1.09545	6
	9	6.3333	.81650	6
	10	5.3333	1.03280	6
	11	4.0000	.00000	6
	12	2.6667	1.03280	6
Total		5.2308	2.01889	78
BHA	0	2.0000	.00000	6
	1	2.3333	.81650	6
	2	3.3333	1.03280	6
	3	4.0000	.00000	6
	4	4.6667	1.03280	6
	5	5.6667	.81650	6
	6	6.0000	.00000	6
	7	6.6667	1.03280	6
	8	6.0000	.00000	6
	9	5.0000	1.09545	6
	10	4.0000	.00000	6
	11	3.3333	1.03280	6
	12	2.3333	.81650	6
Total		4.2564	1.65487	78
500 ppm	0	2.0000	.00000	6
	1	2.6667	1.03280	6
	2	3.6667	.81650	6
	3	4.3333	.81650	6
	4	4.6667	1.03280	6
	5	6.0000	.00000	6
	6	6.3333	.81650	6
	7	6.6667	1.03280	6
	8	6.3333	.81650	6
	9	5.0000	1.09545	6
	10	4.3333	.81650	6
	11	3.3333	1.03280	6
	12	2.3333	.81650	6
Total		4.4359	1.72521	78
800 ppm	0	2.0000	.00000	6
	1	2.3333	.81650	6

	2	2.6667	1.03280	6
	3	3.6667	.81650	6
	4	4.0000	.00000	6
	5	4.3333	.81650	6
	6	5.0000	1.09545	6
	7	5.0000	1.09545	6
	8	4.6667	1.03280	6
	9	4.0000	.00000	6
	10	3.3333	1.03280	6
	11	2.6667	1.03280	6
	12	2.0000	.00000	6
	Total	3.5128	1.29679	78
1000 ppm	0	2.0000	.00000	6
	1	2.0000	.00000	6
	2	2.3333	.81650	6
	3	3.0000	1.09545	6
	4	3.6667	.81650	6
	5	4.0000	.00000	6
	6	4.6667	1.03280	6
	7	4.6667	1.03280	6
	8	4.0000	.00000	6
	9	3.3333	1.03280	6
	10	3.0000	1.09545	6
	11	2.0000	.00000	6
	12	2.0000	.00000	6
	Total	3.1282	1.18824	78
Total	0	2.0000	.00000	30
	1	2.4667	.86037	30
	2	3.2667	1.11211	30
	3	4.0000	1.05045	30
	4	4.6000	1.06997	30
	5	5.3333	1.21296	30
	6	5.9333	1.33735	30
	7	6.2000	1.51771	30
	8	5.6000	1.32873	30
	9	4.7333	1.33735	30
	10	4.0000	1.17444	30
	11	3.0667	1.01483	30
	12	2.2667	.69149	30
	Total	4.1128	1.75859	390

peroksida

	perlakuan	N	Subset			
			1	2	3	4
Duncan(a, b)	1000 ppm	78	3.1282			
	800 ppm	78		3.5128		
	BHA	78			4.2564	
	500 ppm	78			4.4359	
	kontrol	78				5.2308
	Sig.			1.000	1.000	.161

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .636.

a Uses Harmonic Mean Sample Size = 78.000.

b Alpha = .05.

peroksida

	hari	N	Subset										
			1	2	3	4	5	6	7	8			
Duncan(a, b)	0	30	2.0000										
	12	30	2.2667	2.2667									
	1	30		2.4667									
	11	30			3.0667								
	2	30			3.2667								
	10	30				4.0000							
	3	30				4.0000							
	4	30					4.6000						
	9	30					4.7333						
	5	30						5.3333					
	8	30						5.6000	5.6000				
	6	30							5.9333	5.9333			
	7	30								6.2000	5.9333		5.9333
	Sig.			.196	.332	.332	1.000	.518	.196	.106	.106	.196	.196

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .636.

a Uses Harmonic Mean Sample Size = 30.000.

b Alpha = .05.

Data analisis viskositas minyak

Between-Subjects Factors

	Value Label	N	
perlakuan	1.00	kontrol	78
	2.00	BHA	78
	3.00	500 ppm	78
	4.00	800 ppm	78

	5.00	1000 ppm	78
hari	1.00	0	30
	2.00	1	30
	3.00	2	30
	4.00	3	30
	5.00	4	30
	6.00	5	30
	7.00	6	30
	8.00	7	30
	9.00	8	30
	10.00	9	30
	11.00	10	30
	12.00	11	30
	13.00	12	30

Descriptive Statistics

Dependent Variable: viskositas

perlakuan	hari	Mean	Std. Deviation	N
kontrol	0	.8667	.08165	6
	1	.8000	.10954	6
	2	.8000	.10954	6
	3	.8000	.10954	6
	4	.8333	.10328	6
	5	.8000	.10954	6
	6	.7667	.10328	6
	7	.8667	.08165	6
	8	.8333	.10328	6
	9	.8667	.08165	6
	10	.8667	.08165	6
	11	.8000	.10954	6
	12	.8333	.10328	6
	Total	.8256	.09728	78
BHA	0	.9333	.05164	6
	1	.9500	.05477	6
	2	.9333	.05164	6
	3	.9167	.04082	6
	4	.9500	.05477	6
	5	.9500	.05477	6
	6	.9333	.05164	6
	7	.9167	.04082	6
	8	.9333	.05164	6
	9	.9333	.05164	6
	10	.9167	.04082	6
	11	.9500	.05477	6
	12	.9333	.05164	6

	Total	.9346	.04788	78
500 ppm	0	1.1000	.10954	6
	1	1.1333	.10328	6
	2	1.1333	.10328	6
	3	1.1667	.08165	6
	4	1.1000	.10954	6
	5	1.1333	.10328	6
	6	1.1667	.08165	6
	7	1.1667	.08165	6
	8	1.1000	.10954	6
	9	1.1333	.10328	6
	10	1.1333	.10328	6
	11	1.1333	.10328	6
	12	1.1000	.10954	6
	Total	1.1308	.09576	78
800 ppm	0	1.3667	.10328	6
	1	1.4000	.10954	6
	2	1.3667	.10328	6
	3	1.3667	.10328	6
	4	1.3333	.08165	6
	5	1.3667	.10328	6
	6	1.3333	.08165	6
	7	1.4000	.10954	6
	8	1.3667	.10328	6
	9	1.3333	.08165	6
	10	1.3667	.10328	6
	11	1.4000	.10954	6
	12	1.3333	.08165	6
	Total	1.3641	.09394	78
1000 ppm	0	1.6000	.10954	6
	1	1.6000	.10954	6
	2	1.6000	.10954	6
	3	1.5667	.10328	6
	4	1.5333	.08165	6
	5	1.6000	.10954	6
	6	1.6000	.10954	6
	7	1.5333	.08165	6
	8	1.5667	.10328	6
	9	1.5667	.10328	6
	10	1.6000	.10954	6
	11	1.5333	.08165	6
	12	1.5333	.08165	6
	Total	1.5718	.09656	78
Total	0	1.1733	.29235	30
	1	1.1767	.31038	30
	2	1.1667	.30775	30
	3	1.1633	.29883	30

4	1.1500	.27133	30
5	1.1700	.30530	30
6	1.1600	.30917	30
7	1.1767	.27628	30
8	1.1600	.29078	30
9	1.1667	.27459	30
10	1.1767	.29324	30
11	1.1633	.29064	30
12	1.1467	.27384	30
Total	1.1654	.28781	390

Tests of Between-Subjects Effects

Dependent Variable: viskositas

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	29.464(a)	64	.460	54.244	.000
Intercept	529.667	1	529.667	62407.931	.000
perlakuan	29.214	4	7.303	860.529	.000
hari	.034	12	.003	.331	.983
perlakuan * hari	.217	48	.005	.532	.995
Error	2.758	325	.008		
Total	561.890	390			
Corrected Total	32.223	389			

a. R Squared = .914 (Adjusted R Squared = .898)

viskositas

	perlakuan	N	Subset				
			1	2	3	4	5
Duncan(a, b)	kontrol	78	.8256				
	BHA	78		.9346			
	500 ppm	78			1.1308		
	800 ppm	78				1.3641	
	1000 ppm	78					1.5718
	Sig.			1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .008.

a Uses Harmonic Mean Sample Size = 78.000.

b Alpha = .05.

viskositas

	hari	N	Subset
			1
Duncan(a,b)	12	30	1.1467
	4	30	1.1500
	6	30	1.1600
	8	30	1.1600
	3	30	1.1633
	11	30	1.1633
	9	30	1.1667
	2	30	1.1667
	5	30	1.1700
	0	30	1.1733
	7	30	1.1767
	1	30	1.1767
	10	30	1.1767
Sig.			.313

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = .008.

a Uses Harmonic Mean Sample Size = 30.000.

b Alpha = .05.

Tests of Normality

	perlakuan	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
anisidine	kontrol	.160	78	.049	.927	78	.000
	BHA	.167	78	.071	.879	78	.000
	500 ppm	.176	78	.080	.889	78	.000
	800 ppm	.182	78	.084	.899	78	.000
	1000 ppm	.131	78	.074	.921	78	.000
dpph	kontrol	.131	78	.117	.934	78	.001
	BHA	.112	78	.089	.952	78	.005
	500 ppm	.114	78	.056	.964	78	.026
	800 ppm	.188	78	.145	.913	78	.000
	1000 ppm	.147	78	.123	.941	78	.001
indek	kontrol	.118	78	.056	.928	78	.000
	BHA	.177	78	.049	.888	78	.000
	500 ppm	.179	78	.063	.946	78	.002
	800 ppm	.188	78	.071	.924	78	.000
	1000 ppm	.178	78	.057	.897	78	.000
viskositas	kontrol	.175	78	.078	.612	78	.000
	BHA	.152	78	.089	.601	78	.000
	500 ppm	.184	78	.056	.601	78	.000
	800 ppm	.184	78	.056	.588	78	.000
	1000 ppm	.152	78	.089	.607	78	.000

a Lilliefors Significance Correction

Tests of Normality

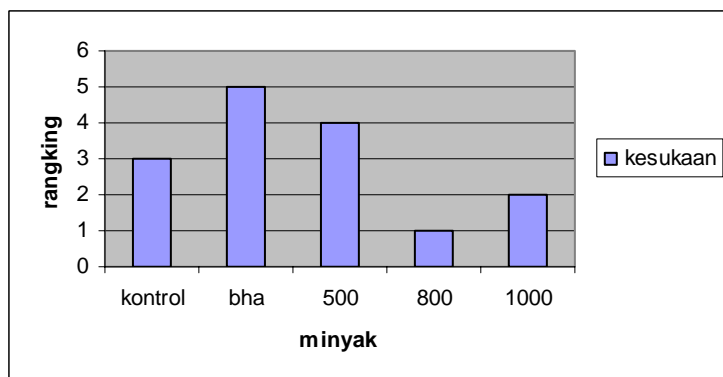
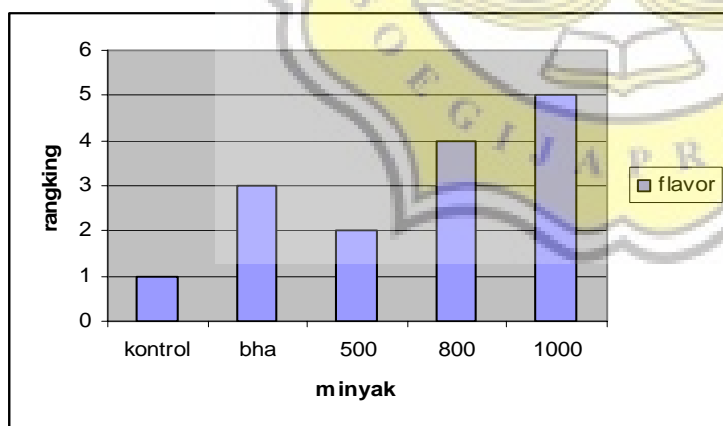
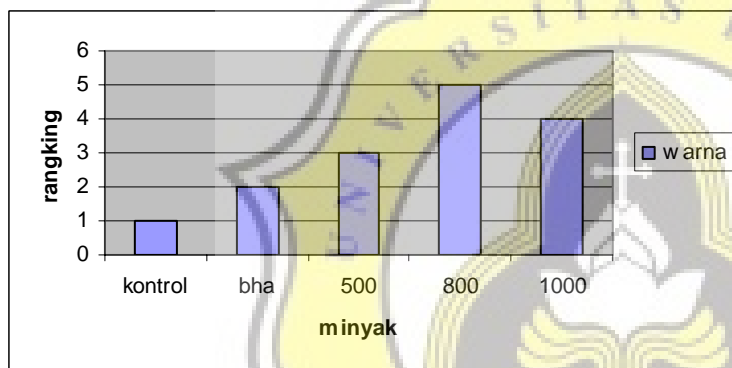
	hari	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
anisdine	0	.156	30	.054	.749	30	.000
	1	.185	30	.065	.868	30	.002
	2	.155	30	.070	.881	30	.003
	3	.123	30	.083	.853	30	.001
	4	.125	30	.084	.714	30	.000
	5	.156	30	.071	.829	30	.000
	6	.145	30	.056	.877	30	.002
	7	.186	30	.059	.888	30	.004
	8	.123	30	.102	.862	30	.001
	9	.113	30	.084	.883	30	.003
	10	.145	30	.089	.857	30	.001
	11	.125	30	.056	.867	30	.001
dpph	12	.145	30	.084	.871	30	.002
	0	.187	30	.051	.810	30	.000
	1	.157	30	.050	.815	30	.000
	2	.125	30	.078	.838	30	.000
	3	.123	30	.036	.889	30	.005
	4	.171	30	.025	.861	30	.001
	5	.156	30	.074	.836	30	.000
	6	.142	30	.084	.650	30	.000
	7	.123	30	.091	.873	30	.002
	8	.156	30	.064	.820	30	.000
	9	.124	30	.065	.860	30	.001
	10	.147	30	.049	.881	30	.003
indek	11	.125	30	.059	.867	30	.001
	12	.124	30	.074	.828	30	.000
	0	.123	30	.065	.862	30	.001
	1	.113	30	.102	.875	30	.002
	2	.168	30	.068	.875	30	.002
	3	.163	30	.078	.887	30	.004
	4	.112	30	.098	.870	30	.002
	5	.157	30	.056	.869	30	.002
	6	.170	30	.075	.878	30	.003
	7	.156	30	.087	.873	30	.002
	8	.125	30	.084	.863	30	.001
	9	.167	30	.032	.871	30	.002
viskositas	10	.132	30	.068	.876	30	.002
	11	.161	30	.045	.882	30	.003
	12	.125	30	.079	.874	30	.002
	0	.123	30	.058	.891	30	.005
	1	.146	30	.084	.925	30	.035
	2	.125	30	.056	.926	30	.039

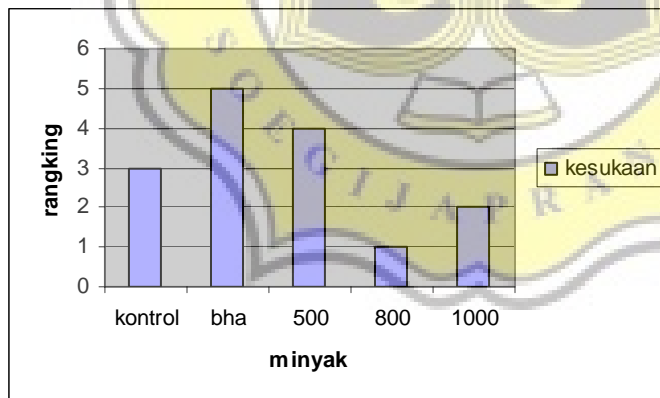
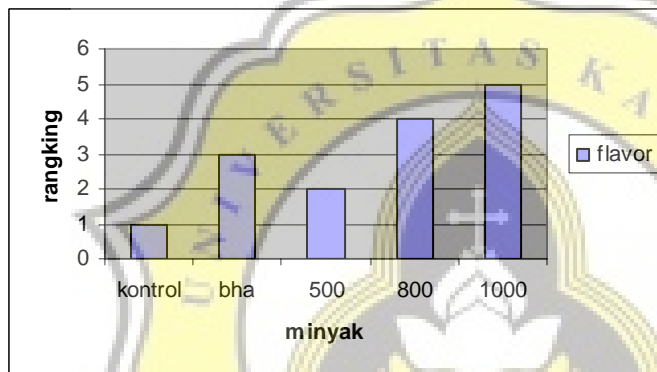
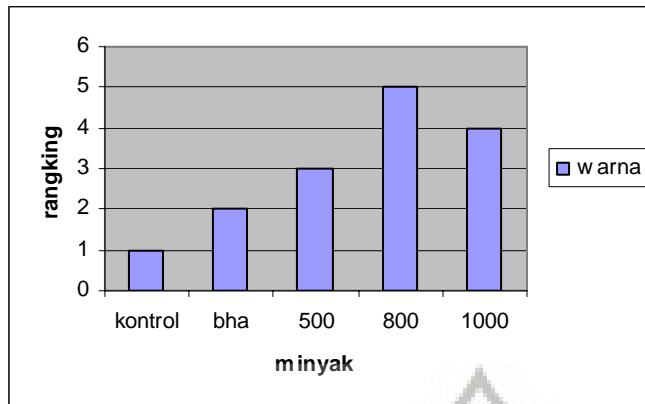
3	.147	30	.075	.924	30	.035
4	.165	30	.069	.922	30	.030
5	.112	30	.148	.931	30	.052
6	.133	30	.185	.934	30	.063
7	.128	30	.147	.883	30	.003
8	.116	30	.125	.913	30	.018
9	.145	30	.054	.909	30	.014
10	.143	30	.056	.892	30	.006
11	.138	30	.084	.915	30	.020
12	.125	30	.057	.916	30	.021

a Lilliefors Significance Correction

Lampiran 4. Grafik rangking uji organoleptik minyak

Sebelum penyimpanan



Setelah penyimpanan

Lampiran 5. gambar minyak sebelum penyimpanan



Ekstrak kunyit



Kunyit

