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Appendix A

DPPH free radical scavenging activity

Table A1.The raw data for the absorbance and DPPH radical inhibition percentages of Puag-Haad

No.	Final conc (µg/ml)	N1				N2				N3			
		n	Abs	Mean	% inh	n	Abs	Mean	% inh	n	Abs	Mean	% inh
1	100.00	1	0.188	0.194	73.00	1	0.160	0.165	73.68	1	0.178	0.178	75.82
		2	0.184			2	0.168			2	0.167		
		3	0.209			3	0.167			3	0.188		
2	50.00	1	0.180	0.183	74.44	1	0.162	0.160	74.48	1	0.185	0.182	75.23
		2	0.184			2	0.160			2	0.181		
		3	0.186			3	0.158			3	0.180		
3	20.00	1	0.199	0.194	73.00	1	0.161	0.164	73.90	1	0.196	0.198	73.09
		2	0.190			2	0.164			2	0.197		
		3	0.192			3	0.166			3	0.200		
4	10.00	1	0.304	0.318	55.67	1	0.253	0.268	57.31	1	0.338	0.335	54.40
		2	0.326			2	0.296			2	0.342		
		3	0.324			3	0.254			3	0.325		
5	5.00	1	0.477	0.478	33.32	1	0.393	0.391	37.69	1	0.493	0.489	33.39
		2	0.478			2	0.380			2	0.483		
		3	0.480			3	0.399			3	0.492		
6	2.50	1	0.577	0.580	19.10	1	0.484	0.506	19.25	1	0.564	0.574	21.82
		2	0.586			2	0.485			2	0.584		
		3	0.578			3	0.550			3	0.575		
7	1.00	1	0.676	0.666	7.11	1	0.567	0.560	10.74	1	0.643	0.642	12.66
		2	0.668			2	0.559			2	0.643		
		3	0.655			3	0.553			3	0.639		
8	0.50	1	0.687	0.688	4.04	1	0.584	0.589	6.06	1	0.623	0.651	11.42
		2	0.692			2	0.597			2	0.667		
		3	0.686			3	0.586			3	0.663		
9	0.00	1	0.718	0.717	0.00	1	0.624	0.627	0.00	1	0.737	0.735	0.00
		2	0.719			2	0.620			2	0.733		
		3	0.715			3	0.637			3	0.734		

Table A2. The average percentage of DPPH inhibition of Puag-Haad (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	100.00	73.00	73.68	75.82	74.17	1.47
2	50.00	74.44	74.48	75.23	74.72	0.45
3	20.00	73.00	73.90	73.09	73.33	0.50
4	10.00	55.67	57.31	54.40	55.79	1.46
5	5.00	33.32	37.69	33.39	34.80	2.50
6	2.50	19.10	19.25	21.82	20.06	1.53
7	1.00	7.11	10.74	12.66	10.17	2.82
8	0.50	4.04	6.06	11.42	7.17	3.81
9	0.00	0.00	0.00	0.00	0.00	0.00

Table A3. The raw data for the absorbance and DPPH radical inhibition percentages of oxyresveratrol

No	Final concentration (µg/ml)	N1				N2				N3			
		n	Abs	Mean	% inh	n	Abs	Mean	% inh	n	Abs	Mean	% inh
		1	0.119			1	0.142			1	0.129		
1	100.00	2	0.122	0.119	86.50	2	0.146	0.140	80.80	2	0.113	0.120	86.34
		3	0.117			3	0.132			3	0.117		
		1	0.101			1	0.146			1	0.128		
2	50.00	2	0.103	0.106	88.05	2	0.148	0.145	80.07	2	0.130	0.129	85.28
		3	0.113			3	0.142			3	0.129		
		1	0.134			1	0.152			1	0.141		
3	20.00	2	0.147	0.135	84.69	2	0.144	0.149	79.62	2	0.136	0.137	84.33
		3	0.125			3	0.150			3	0.135		
		1	0.342			1	0.310			1	0.426		
4	10.00	2	0.368	0.358	59.54	2	0.306	0.312	57.22	2	0.429	0.423	51.73
		3	0.363			3	0.320			3	0.414		
		1	0.631			1	0.488			1	0.611		
5	5.00	2	0.607	0.636	28.09	2	0.491	0.491	32.68	2	0.622	0.614	29.90
		3	0.669			3	0.494			3	0.610		
		1	0.753			1	0.575			1	0.712		
6	2.50	2	0.767	0.752	14.97	2	0.572	0.583	20.11	2	0.738	0.726	17.19
		3	0.735			3	0.601			3	0.727		
		1	0.793			1	0.677			1	0.818		
7	1.00	2	0.788	0.787	10.97	2	0.667	0.663	9.14	2	0.820	0.817	6.81
		3	0.780			3	0.644			3	0.812		
		1	0.856			1	0.678			1	0.832		
8	0.50	2	0.825	0.838	5.20	2	0.672	0.675	7.45	2	0.831	0.833	4.91
		3	0.833			3	0.675			3	0.837		
		1	0.892			1	0.724			1	0.874		
9	0.00	2	0.877	0.884	0.00	2	0.731	0.729	0.00	2	0.875	0.876	0.00
		3	0.883			3	0.733			3	0.880		

Table A4. The average percentage of DPPH inhibition of oxyresveratrol (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	100.00	86.50	80.80	86.34	84.55	3.25
2	50.00	88.05	80.07	85.28	84.47	4.05
3	20.00	84.69	79.62	84.33	82.88	2.83
4	10.00	59.54	57.22	51.73	56.16	4.01
5	5.00	28.09	32.68	29.90	30.22	2.31
6	2.50	14.97	20.11	17.19	17.42	2.58
7	1.00	10.97	9.14	6.81	8.97	2.09
8	0.50	5.20	7.45	4.91	5.85	1.39
9	0.00	0.00	0.00	0.00	0.00	0.00

Table A5. The raw data for the absorbance and DPPH radical inhibition percentages of Trolox®

No	Final concentration (µg/ml)	N1				N2				N3			
		n	Abs	Mean	% inh	n	Abs	Mean	% inh	n	Abs	Mean	% inh
1	100.00	1	0.039	0.039	95.88	1	0.030	0.030	96.57	1	0.027	0.027	96.39
		2	0.031			2	0.028			2	0.027		
		3	0.047			3	0.031			3	0.027		
2	50.00	1	0.047	0.043	95.42	1	0.031	0.030	96.49	1	0.028	0.027	96.34
		2	0.045			2	0.031			2	0.027		
		3	0.038			3	0.029			3	0.027		
3	20.00	1	0.068	0.062	93.49	1	0.043	0.040	95.33	1	0.035	0.033	95.54
		2	0.057			2	0.039			2	0.033		
		3	0.060			3	0.039			3	0.032		
4	10.00	1	0.147	0.140	85.22	1	0.115	0.109	87.35	1	0.087	0.083	88.85
		2	0.135			2	0.110			2	0.087		
		3	0.138			3	0.103			3	0.076		
5	5.00	1	0.508	0.516	45.55	1	0.513	0.508	41.23	1	0.388	0.381	48.97
		2	0.516			2	0.502			2	0.379		
		3	0.523			3	0.509			3	0.377		
6	2.50	1	0.796	0.760	19.71	1	0.712	0.696	19.44	1	0.576	0.584	21.86
		2	0.741			2	0.684			2	0.586		
		3	0.744			3	0.693			3	0.590		
7	1.00	1	0.886	0.853	9.89	1	0.811	0.804	7.02	1	0.706	0.691	7.58
		2	0.833			2	0.799			2	0.660		
		3	0.841			3	0.801			3	0.706		
8	0.50	1	0.915	0.904	4.58	1	0.841	0.837	3.12	1	0.734	0.730	2.27
		2	0.909			2	0.830			2	0.728		
		3	0.887			3	0.841			3	0.729		
9	0.00	1	0.950	0.947	0.00	1	0.867	0.864	0.00	1	0.744	0.747	0.00
		2	0.943			2	0.862			2	0.747		
		3	0.948			3	0.864			3	0.751		

Table A6. The average percentage of DPPH inhibition of Trolox® (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	100.00	95.88	96.57	96.39	96.28	0.36
2	50.00	95.42	96.49	96.34	96.08	0.58
3	20.00	93.49	95.33	95.54	94.79	1.13
4	10.00	85.22	87.35	88.85	87.14	1.82
5	5.00	45.55	41.23	48.97	45.25	3.88
6	2.50	19.71	19.44	21.86	20.34	1.33
7	1.00	9.89	7.02	7.58	8.16	1.52
8	0.50	4.58	3.12	2.27	3.32	1.17
9	0.00	0.00	0.00	0.00	0.00	0.00

Table A7. The raw data for the absorbance and DPPH radical inhibition percentages of l-ascorbic acid

No	Final concentration (µg/ml)	N1				N2				N3			
		n	Abs	Mean	% inh	n	Abs	Mean	% inh	n	Abs	Mean	% inh
1	100.00	1	0.078	0.073	92.95	1	0.023	0.023	97.29	1	0.029	0.031	96.34
		2	0.079			2	0.023			2	0.029		
		3	0.063			3	0.024			3	0.034		
2	50.00	1	0.071	0.068	93.47	1	0.023	0.023	97.33	1	0.040	0.038	95.53
		2	0.069			2	0.023			2	0.035		
		3	0.064			3	0.023			3	0.038		
3	20.00	1	0.096	0.088	91.58	1	0.030	0.040	95.36	1	0.038	0.040	95.23
		2	0.085			2	0.028			2	0.038		
		3	0.082			3	0.028			3	0.044		
4	10.00	1	0.175	0.195	81.29	1	0.074	0.117	86.47	1	0.082	0.089	89.39
		2	0.187			2	0.075			2	0.091		
		3	0.222			3	0.069			3	0.094		
5	5.00	1	0.362	0.386	62.88	1	0.206	0.320	62.88	1	0.289	0.295	64.84
		2	0.389			2	0.191			2	0.312		
		3	0.408			3	0.188			3	0.284		
6	2.50	1	0.750	0.760	26.94	1	0.581	0.593	31.21	1	0.570	0.567	32.42
		2	0.756			2	0.578			2	0.553		
		3	0.775			3	0.584			3	0.578		
7	1.00	1	0.852	0.836	19.70	1	0.617	0.636	26.18	1	0.699	0.649	22.61
		2	0.810			2	0.628			2	0.622		
		3	0.845			3	0.625			3	0.627		
8	0.50	1	0.907	0.914	12.17	1	0.656	0.728	15.55	1	0.723	0.743	11.40
		2	0.923			2	0.661			2	0.752		
		3	0.912			3	0.659			3	0.755		
9	0.00	1	1.022	1.041	0.00	1	0.864	0.862	0.00	1	0.836	0.839	0.00
		2	1.029			2	0.866			2	0.832		
		3	1.071			3	0.858			3	0.849		

Table A8. The average percentage of DPPH inhibition of l-ascorbic acid (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	100.00	92.95	97.29	96.34	95.53	2.28
2	50.00	93.47	97.33	95.53	95.44	1.93
3	20.00	91.58	95.36	95.23	94.06	2.15
4	10.00	81.29	86.47	89.39	85.72	4.10
5	5.00	62.88	62.88	64.84	63.53	1.13
6	2.50	26.94	31.21	32.42	30.19	2.88
7	1.00	19.17	26.18	22.61	22.65	3.51
8	0.50	12.17	15.55	11.40	13.04	2.21
9	0.00	0.00	0.00	0.00	0.00	0.00

Table A9. The raw data for the absorbance and DPPH radical inhibition percentages of EGCG

No	Final concentration (µg/ml)	N1				N2				N3			
		n	Abs	Mean	% inh	n	Abs	Mean	% inh	n	Abs	Mean	% inh
1	100.00	1	0.095	0.097	87.91	1	0.084	0.082	88.60	1	0.084	0.089	88.00
		2	0.102			2	0.080			2	0.086		
		3	0.094			3	0.083			3	0.098		
2	50.00	1	0.099	0.102	87.29	1	0.091	0.088	87.81	1	0.092	0.090	87.91
		2	0.104			2	0.087			2	0.082		
		3	0.103			3	0.086			3	0.096		
3	20.00	1	0.089	0.093	88.37	1	0.101	0.098	86.43	1	0.096	0.096	87.15
		2	0.089			2	0.095			2	0.097		
		3	0.102			3	0.098			3	0.094		
4	10.00	1	0.101	0.094	88.24	1	0.095	0.093	87.07	1	0.095	0.101	86.43
		2	0.092			2	0.100			2	0.105		
		3	0.090			3	0.085			3	0.103		
5	5.00	1	0.116	0.114	85.79	1	0.100	0.115	84.07	1	0.099	0.102	86.30
		2	0.115			2	0.135			2	0.102		
		3	0.111			3	0.110			3	0.105		
6	2.50	1	0.315	0.313	60.99	1	0.243	0.245	66.07	1	0.245	0.220	70.44
		2	0.309			2	0.250			2	0.196		
		3	0.315			3	0.242			3	0.219		
7	1.00	1	0.592	0.595	25.80	1	0.492	0.485	32.78	1	0.502	0.510	31.48
		2	0.609			2	0.464			2	0.509		
		3	0.585			3	0.500			3	0.519		
8	0.50	1	0.675	0.663	17.37	1	0.607	0.608	15.84	1	0.610	0.617	17.06
		2	0.669			2	0.604			2	0.621		
		3	0.645			3	0.612			3	0.621		
9	0.00	1	0.807	0.802	0.00	1	0.721	0.722	0.00	1	0.743	0.744	0.00
		2	0.798			2	0.724			2	0.749		
		3	0.802			3	0.721			3	0.741		

Table A10. The average percentage of DPPH inhibition of EGCG (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	100.00	87.91	88.60	88.00	88.17	0.38
2	50.00	87.29	87.81	87.91	87.67	0.33
3	20.00	88.37	86.43	87.15	87.32	0.98
4	10.00	88.24	87.07	86.43	87.25	0.92
5	5.00	85.79	84.07	86.30	85.39	1.17
6	2.50	60.99	66.07	70.44	65.83	4.73
7	1.00	25.80	32.78	31.48	30.02	3.71
8	0.50	17.37	15.84	17.06	16.76	0.81
9	0.00	0.00	0.00	0.00	0.00	0.00

Table A11. The raw data for the absorbance and DPPH radical inhibition percentages of pine bark extract

No	Final concentration (µg/ml)	N1				N2				N3			
		n	Abs	Mean	% inh	n	Abs	Mean	% inh	n	Abs	Mean	% inh
1	100.00	1	0.092	0.091	88.22	1	0.122	0.105	86.36	1	0.093	0.093	87.97
		2	0.091			2	0.097			2	0.092		
		3	0.091			3	0.097			3	0.093		
2	50.00	1	0.096	0.092	88.13	1	0.083	0.083	89.29	1	0.079	0.085	89.00
		2	0.085			2	0.084			2	0.085		
		3	0.095			3	0.081			3	0.090		
3	20.00	1	0.094	0.087	88.77	1	0.095	0.094	87.82	1	0.096	0.091	88.18
		2	0.099			2	0.093			2	0.090		
		3	0.068			3	0.094			3	0.087		
4	10.00	1	0.095	0.099	87.18	1	0.098	0.099	87.18	1	0.102	0.099	87.14
		2	0.100			2	0.099			2	0.100		
		3	0.103			3	0.100			3	0.095		
5	5.00	1	0.108	0.109	85.94	1	0.105	0.105	86.36	1	0.109	0.106	86.19
		2	0.109			2	0.109			2	0.102		
		3	0.110			3	0.102			3	0.108		
6	2.50	1	0.398	0.401	48.22	1	0.359	0.346	55.22	1	0.369	0.358	53.51
		2	0.405			2	0.339			2	0.347		
		3	0.401			3	0.339			3	0.358		
7	1.00	1	0.624	0.621	19.87	1	0.622	0.606	21.50	1	0.618	0.607	21.13
		2	0.618			2	0.598			2	0.597		
		3	0.621			3	0.598			3	0.607		
8	0.50	1	0.695	0.698	9.98	1	0.684	0.680	11.92	1	0.711	0.709	7.97
		2	0.699			2	0.676			2	0.704		
		3	0.699			3	0.680			3	0.711		
9	0.00	1	0.771	0.775	0.00	1	0.773	0.772	0.00	1	0.783	0.770	0.00
		2	0.782			2	0.767			2	0.765		
		3	0.772			3	0.776			3	0.762		

Table A12. The average percentage of DPPH inhibition of pine bark extract (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	100.00	88.22	86.36	87.97	87.52	1.01
2	50.00	88.13	89.29	89.00	88.81	0.60
3	20.00	88.77	87.82	88.18	88.26	0.48
4	10.00	87.18	87.18	87.14	87.17	0.02
5	5.00	85.94	86.36	86.19	86.16	0.21
6	2.50	48.22	55.22	53.51	52.32	3.65
7	1.00	19.87	21.50	21.13	20.83	0.85
8	0.50	9.98	11.92	7.97	9.96	1.98
9	0.00	0.00	0.00	0.00	0.00	0.00

Table A13.One-way analysis of variance on the IC_{50} values of DPPH inhibition

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	130.852	5	26.170	145.463	0.000
Within groups	2.159	12	0.180		
Total	133.011	17			

Table A14. Multiple comparisons on the IC_{50} values of DPPH inhibition

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
5	3	1.747			
6	3	2.427			
4	3		3.827		
3	3			5.480	
1	3				8.253
2	3				8.777
Sig.		0.414	1.000	1.000	0.664

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A15. One-way analysis of variance on the % inhibition at 0.5 μg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	366.384	5	73.277	16.121	0.000
Within groups	54.545	12	4.545		
Total	420.929	17			

Table A16. Multiple comparisons % inhibition at 0.5 μg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
3	3	3.232			
2	3	5.853	5.853		
1	3	7.713	7.173		
6	3		9.957	9.957	
4	3			13.004	13.004
5	3				16.757
Sig.		0.300	0.245	0.516	0.333

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A17. One-way analysis of variance on the % inhibition at 1.0 µg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	1215.310	5	243.062	35.225	0.000
Within groups	82.803	12	6.9000		
Total	1298.113	17			

Table A18. Multiple comparisons % inhibition at 1.0 µg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
3	3	8.163		
2	3	8.973		
1	3	10.170		
6	3		20.833	
4	3		22.653	
5	3			30.020
Sig.		0.929	0.952	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A19. One-way analysis of variance on the % inhibition at 2.5 µg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	6055.474	5	1211.095	132.806	0.000
Within groups	109.431	12	9.119		
Total	6164.905	17			

Table A20. Multiple comparisons % inhibition at 2.5 µg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
2	3	17.423			
1	3	20.057			
3	3	20.337			
4	3		30.19		
6	3			52.317	
5	3				65.833
Sig.		0.837	1.000	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A21. One-way analysis of variance on the % inhibition at 5.0 µg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	9135.005	5	1827.001	373.549	0.000
Within groups	58.691	12	4.891		
Total	9193.696	17			

Table A22. Multiple comparisons % inhibition at 5.0 µg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
2	3	30.223			
1	3	34.800			
3	3		45.250		
4	3			63.533	
6	3				85.387
5	3				86.163
Sig.		0.188	1.000	1.000	0.998

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A23. One-way analysis of variance on the % inhibition at 10.0 μg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	3809.288	5	761.858	116.571	0.000
Within groups	78.427	12	6.536		
Total	3887.715	17			

Table A24. Multiple comparisons % inhibition at 10.0 μg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05	
		1	2
1	3	55.793	
2	3	56.163	
4	3		85.716
3	3		87.140
6	3		87.167
5	3		87.247
Sigs.		1.000	0.974

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A25. One-way analysis of variance on the % inhibition at 20.0 µg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	946.912	5	189.382	74.184	0.000
Within groups	30.634	12	2.553		
Total	977.546	17			

Table A26. Multiple comparisons % inhibition at 20.0 µg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
1	3	73.330			
2	3		82.880		
5	3			87.317	
6	3			88.257	
4	3				94.057
3	3				94.787
Sig.		1.000	1.000	0.976	0.992

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A27. One-way analysis of variance on the % inhibition at 50.0 µg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	930.973	5	186.195	52.807	0.000
Within groups	42.311	12	3.526		
Total	973.284	17			

Table A28. Multiple comparisons % inhibition at 50.0 µg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
1	3	74.717		
2	3		84.467	
5	3		87.670	
6	3		88.807	
4	3			95.443
3	3			96.083
Sig.		1.000	0.119	0.998

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table A29. One-way analysis of variance on the % inhibition at 100.0 µg/ml of DPPH test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	984.667	5	196.933	61.564	0.000
Within groups	38.386	12	3.199		
Total	1023.053	17			

Table A30. Multiple comparisons % inhibition at 100.0 µg/ml of DPPH test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
1	3	74.167		
2	3		84.547	
6	3		87.517	
5	3		88.17	
4	3			95.527
3	3			96.280
Sig.		1.000	0.204	0.9948

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Appendix B

Data of Superoxide Radical Scavenging Activity

Table B1.The raw data for the absorbance and superoxide radical inhibition percentages of Puag-Haad

No.	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 560 nm					n	Abs at 560 nm					n	Abs at 560 nm				
			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$	
1	0.00	1	0.507	0.006	0.497	0.516	0.00	1	0.489	0.006	0.483	0.510	0.00	1	0.494	0.007	0.487	0.491	0.00
		2	0.538	0.004	0.529			2	0.542	0.006	0.536			2	0.489	0.006	0.483		
		3	0.531	0.006	0.522			3	0.517	0.005	0.512			3	0.507	0.005	0.502		
2	5.00	1	0.507	0.009	0.498	0.504	2.33	1	0.482	0.008	0.474	0.485	4.96	1	0.481	0.008	0.473	0.473	3.60
		2	0.504	0.008	0.496			2	0.491	0.009	0.482			2	0.466	0.008	0.458		
		3	0.527	0.009	0.518			3	0.508	0.009	0.499			3	0.496	0.008	0.488		
3	10.00	1	0.461	0.010	0.451	0.454	12.02	1	0.466	0.011	0.455	0.442	13.39	1	0.443	0.010	0.433	0.444	9.51
		2	0.458	0.009	0.449			2	0.450	0.010	0.440			2	0.470	0.009	0.461		
		3	0.471	0.009	0.462			3	0.440	0.009	0.431			3	0.447	0.009	0.438		
4	25.00	1	0.369	0.021	0.348	0.365	29.20	1	0.380	0.021	0.359	0.383	25.02	1	0.368	0.022	0.346	0.358	27.11
		2	0.392	0.021	0.371			2	0.416	0.021	0.395			2	0.375	0.021	0.354		
		3	0.400	0.023	0.377			3	0.417	0.023	0.394			3	0.394	0.021	0.373		
5	50.00	1	0.297	0.084	0.213	0.232	55.06	1	0.324	0.088	0.236	0.240	53.04	1	0.274	0.078	0.196	0.235	52.04
		2	0.319	0.074	0.245			2	0.313	0.082	0.231			2	0.323	0.075	0.248		
		3	0.312	0.074	0.238			3	0.328	0.076	0.252			3	0.337	0.075	0.262		
6	100.00	1	0.201	0.167	0.034	0.050	90.31	1	0.243	0.168	0.075	0.054	89.35	1	0.230	0.164	0.066	0.071	85.60
		2	0.199	0.153	0.046			2	0.201	0.159	0.042			2	0.213	0.141	0.072		
		3	0.224	0.154	0.070			3	0.215	0.169	0.046			3	0.225	0.151	0.074		

Table B2. The raw data for the absorbance and superoxide radical inhibition percentages of oxyresveratrol

No.	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 560 nm					n	Abs at 560 nm					n	Abs at 560 nm				
			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$	
1	0.00	1	0.568	0.066	0.559	0.540	0.00	1	0.563	0.008	0.555	0.537	0.00	1	0.545	0.007	0.538	0.537	0.00
		2	0.550	0.007	0.540			2	0.508	0.006	0.502			2	0.545	0.008	0.537		
		3	0.528	0.007	0.520			3	0.562	0.007	0.555			3	0.542	0.007	0.535		
2	5.00	1	0.505	0.009	0.496	0.495	8.34	1	0.495	0.008	0.487	0.488	9.24	1	0.508	0.008	0.500	0.515	3.98
		2	0.503	0.009	0.494			2	0.482	0.008	0.474			2	0.507	0.009	0.498		
		3	0.502	0.008	0.494			3	0.510	0.008	0.502			3	0.557	0.009	0.548		
3	10.00	1	0.484	0.009	0.475	0.466	13.71	1	0.447	0.008	0.439	0.469	12.64	1	0.507	0.010	0.497	0.480	10.62
		2	0.452	0.010	0.442			2	0.484	0.009	0.475			2	0.484	0.009	0.475		
		3	0.488	0.008	0.480			3	0.504	0.010	0.494			3	0.476	0.009	0.467		
4	25.00	1	0.451	0.044	0.407	0.398	26.25	1	0.431	0.048	0.383	0.383	28.72	1	0.442	0.043	0.399	0.397	25.96
		2	0.431	0.047	0.384			2	0.423	0.041	0.382			2	0.452	0.047	0.405		
		3	0.444	0.041	0.403			3	0.435	0.051	0.384			3	0.437	0.049	0.388		
5	50.00	1	0.407	0.199	0.208	0.235	56.52	1	0.403	0.185	0.218	0.230	57.13	1	0.401	0.182	0.219	0.232	56.77
		2	0.434	0.189	0.245			2	0.431	0.179	0.252			2	0.422	0.199	0.223		
		3	0.435	0.184	0.251			3	0.414	0.193	0.221			3	0.431	0.177	0.254		
6	100.00	1	0.216	0.213	0.003	0.031	94.32	1	0.277	0.225	0.052	0.034	93.73	1	0.231	0.224	0.007	0.024	95.47
		2	0.251	0.190	0.061			2	0.214	0.205	0.009			2	0.206	0.195	0.011		
		3	0.233	0.205	0.028			3	0.268	0.228	0.040			3	0.263	0.208	0.055		

Table B3. The raw data for the absorbance and superoxide radical inhibition percentages of Trolox®

No.	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 560 nm			$\bar{x}$		n	Abs at 560 nm			$\bar{x}$		n	Abs at 560 nm			$\bar{x}$	
			Abs	Blank	Diff				Abs	Blank	Diff				Abs	Blank	Diff		
1	0.00	1	0.523	0.008	0.516	0.525	0.00	1	0.523	0.008	0.515	0.518	0.00	1	0.523	0.007	0.516	0.526	0.00
		2	0.535	0.008	0.527			2	0.522	0.007	0.515			2	0.539	0.007	0.532		
		3	0.538	0.007	0.531			3	0.533	0.008	0.525			3	0.537	0.008	0.529		
2	5.00	1	0.410	0.007	0.403	0.436	16.96	1	0.468	0.006	0.462	0.440	15.11	1	0.414	0.009	0.405	0.414	21.24
		2	0.451	0.006	0.445			2	0.431	0.006	0.425			2	0.415	0.006	0.409		
		3	0.466	0.007	0.459			3	0.441	0.008	0.433			3	0.434	0.006	0.428		
3	10.00	1	0.396	0.007	0.389	0.367	30.05	1	0.353	0.007	0.346	0.348	32.93	1	0.367	0.007	0.360	0.362	31.20
		2	0.395	0.008	0.387			2	0.356	0.007	0.349			2	0.380	0.007	0.373		
		3	0.332	0.007	0.325			3	0.357	0.009	0.348			3	0.359	0.007	0.352		
4	25.00	1	0.278	0.008	0.270	0.277	47.20	1	0.285	0.006	0.279	0.282	45.68	1	0.274	0.006	0.268	0.289	44.96
		2	0.276	0.007	0.269			2	0.258	0.009	0.285			2	0.309	0.009	0.300		
		3	0.300	0.008	0.292			3	0.290	0.009	0.281			3	0.306	0.006	0.300		
5	50.00	1	0.168	0.008	0.160	0.163	69.00	1	0.152	0.006	0.146	0.165	68.10	1	0.164	0.008	0.156	0.177	66.27
		2	0.162	0.007	0.155			2	0.184	0.008	0.176			2	0.195	0.007	0.188		
		3	0.180	0.007	0.173			3	0.181	0.007	0.174			3	0.195	0.007	0.188		
6	100.00	1	0.041	0.007	0.034	0.038	92.69	1	0.039	0.008	0.031	0.037	92.93	1	0.044	0.007	0.037	0.038	92.71
		2	0.049	0.007	0.042			2	0.049	0.007	0.042			2	0.048	0.008	0.040		
		3	0.046	0.007	0.039			3	0.045	0.008	0.037			3	0.045	0.007	0.038		

Table B4. The raw data for the absorbance and superoxide radical inhibition percentages of l-ascorbic acid

No.	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 560 nm					n	Abs at 560 nm					n	Abs at 560 nm				
			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$	
1	0.00	1	0.494	0.005	0.487	0.491	0.00	1	0.519	0.006	0.513	0.529	0.00	1	0.519	0.005	0.514	0.494	0.00
		2	0.489	0.006	0.481			2	0.545	0.007	0.538			2	0.490	0.004	0.486		
		3	0.512	0.006	0.504			3	0.542	0.007	0.535			3	0.487	0.006	0.481		
2	5.00	1	0.477	0.007	0.470	0.467	4.76	1	0.507	0.007	0.500	0.503	4.80	1	0.460	0.006	0.454	0.469	4.93
		2	0.479	0.006	0.473			2	0.509	0.007	0.502			2	0.460	0.007	0.453		
		3	0.466	0.007	0.459			3	0.516	0.008	0.508			3	0.507	0.006	0.501		
3	10.00	1	0.431	0.007	0.424	0.425	13.38	1	0.479	0.008	0.471	0.451	14.67	1	0.421	0.009	0.412	0.415	16.00
		2	0.433	0.008	0.425			2	0.435	0.008	0.427			2	0.391	0.008	0.383		
		3	0.434	0.008	0.426			3	0.464	0.009	0.455			3	0.456	0.007	0.449		
4	25.00	1	0.326	0.008	0.318	0.339	30.91	1	0.350	0.009	0.341	0.345	34.74	1	0.328	0.008	0.320	0.326	34.03
		2	0.366	0.008	0.358			2	0.349	0.008	0.341			2	0.326	0.008	0.318		
		3	0.350	0.009	0.341			3	0.362	0.009	0.353			3	0.348	0.009	0.339		
5	50.00	1	0.220	0.011	0.209	0.221	54.96	1	0.215	0.010	0.205	0.241	54.43	1	0.181	0.011	0.170	0.185	62.53
		2	0.255	0.010	0.245			2	0.266	0.011	0.255			2	0.227	0.011	0.216		
		3	0.220	0.011	0.209			3	0.273	0.010	0.263			3	0.181	0.012	0.169		
6	100.00	1	0.253	0.015	0.238	0.244	50.20	1	0.307	0.013	0.294	0.299	43.39	1	0.267	0.014	0.253	0.242	50.91
		2	0.268	0.014	0.254			2	0.344	0.014	0.330			2	0.265	0.015	0.250		
		3	0.256	0.015	0.241			3	0.286	0.012	0.274			3	0.241	0.017	0.224		

Table B5. The raw data for the absorbance and superoxide radical inhibition percentages of EGCG

No.	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 560 nm			$\bar{x}$		n	Abs at 560 nm			$\bar{x}$		n	Abs at 560 nm			$\bar{x}$	
			Abs	Blank	Diff				Abs	Blank	Diff				Abs	Blank	Diff		
1	0.00	1	0.424	0.008	0.401	0.413	0.00	1	0.458	0.010	0.448	0.482	0.00	1	0.586	0.011	0.575	0.542	0.00
		2	0.410	0.009	0.387			2	0.507	0.010	0.497			2	0.533	0.010	0.523		
		3	0.472	0.009	0.451			3	0.511	0.009	0.502			3	0.537	0.008	0.529		
2	5.00	1	0.095	0.019	0.076	0.091	77.89	1	0.153	0.018	0.135	0.141	70.84	1	0.129	0.016	0.113	0.139	74.37
		2	0.107	0.020	0.087			2	0.161	0.024	0.137			2	0.159	0.018	0.141		
		3	0.131	0.020	0.111			3	0.168	0.018	0.150			3	0.181	0.018	0.163		
3	10.00	1	0.076	0.023	0.053	0.070	83.13	1	0.092	0.028	0.064	0.080	83.41	1	0.083	0.025	0.058	0.066	87.89
		2	0.081	0.023	0.058			2	0.112	0.024	0.088			2	0.092	0.025	0.067		
		3	0.119	0.021	0.098			3	0.112	0.024	0.088			3	0.095	0.023	0.072		
4	25.00	1	0.078	0.047	0.031	0.047	88.62	1	0.104	0.052	0.052	0.056	88.39	1	0.106	0.049	0.057	0.047	91.40
		2	0.089	0.045	0.044			2	0.111	0.042	0.069			2	0.078	0.044	0.034		
		3	0.108	0.042	0.066			3	0.092	0.045	0.047			3	0.092	0.042	0.050		
5	50.00	1	0.112	0.081	0.031	0.030	92.74	1	0.124	0.082	0.042	0.036	92.54	1	0.123	0.085	0.038	0.038	93.07
		2	0.114	0.086	0.028			2	0.114	0.078	0.036			2	0.115	0.081	0.034		
		3	0.115	0.084	0.031			3	0.112	0.082	0.030			3	0.123	0.083	0.040		
6	100.00	1	0.117	0.088	0.029	0.030	92.82	1	0.132	0.086	0.046	0.046	90.53	1	0.125	0.085	0.040	0.048	91.19
		2	0.118	0.090	0.028			2	0.121	0.081	0.040			2	0.137	0.089	0.048		
		3	0.120	0.088	0.032			3	0.133	0.082	0.051			3	0.137	0.081	0.056		

Table B6. The raw data for the absorbance and superoxide radical inhibition percentages of pine bark extract

No.	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 560 nm					n	Abs at 560 nm					n	Abs at 560 nm				
			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$			Abs	Blank	Diff	$\bar{x}$	
1	0.00	1	0.485	0.006	0.472	0.484	0.00	1	0.513	0.009	0.504	0.500	0.00	1	0.560	0.006	0.554	0.482	0.00
		2	0.495	0.006	0.482			2	0.461	0.008	0.453			2	0.457	0.007	0.450		
		3	0.510	0.006	0.498			3	0.553	0.009	0.544			3	0.450	0.007	0.443		
2	5.00	1	0.203	0.009	0.194	0.188	61.16	1	0.193	0.012	0.181	0.189	62.29	1	0.212	0.008	0.204	0.199	58.67
		2	0.189	0.008	0.181			2	0.207	0.011	0.196			2	0.204	0.010	0.194		
		3	0.199	0.010	0.189			3	0.199	0.010	0.189			3	0.209	0.009	0.200		
3	10.00	1	0.070	0.013	0.057	0.071	85.33	1	0.097	0.013	0.084	0.088	82.48	1	0.108	0.014	0.094	0.085	82.38
		2	0.080	0.013	0.067			2	0.101	0.013	0.088			2	0.097	0.014	0.083		
		3	0.101	0.012	0.089			3	0.105	0.014	0.091			3	0.091	0.013	0.078		
4	25.00	1	0.059	0.026	0.033	0.034	92.98	1	0.064	0.031	0.033	0.039	92.27	1	0.069	0.024	0.045	0.040	91.71
		2	0.055	0.024	0.031			2	0.070	0.026	0.044			2	0.068	0.029	0.039		
		3	0.066	0.028	0.038			3	0.065	0.026	0.039			3	0.062	0.026	0.036		
5	50.00	1	0.082	0.057	0.025	0.027	94.36	1	0.095	0.052	0.043	0.036	92.74	1	0.087	0.049	0.038	0.033	93.23
		2	0.073	0.046	0.027			2	0.085	0.048	0.037			2	0.076	0.053	0.023		
		3	0.073	0.043	0.030			3	0.077	0.048	0.029			3	0.085	0.048	0.037		
6	100.00	1	0.160	0.102	0.058	0.057	88.22	1	0.157	0.101	0.056	0.049	90.27	1	0.153	0.108	0.045	0.054	88.80
		2	0.135	0.088	0.047			2	0.139	0.094	0.045			2	0.160	0.098	0.062		
		3	0.155	0.089	0.066			3	0.157	0.112	0.045			3	0.157	0.102	0.055		

Table B7. The average percentage of superoxide inhibition of Puag-Haad (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	2.33	4.96	3.60	3.63	1.32
3	10.00	12.02	13.39	9.51	11.64	1.97
4	25.00	29.20	25.02	27.11	27.11	2.09
5	50.00	55.06	53.04	52.04	53.38	1.54
6	100.00	90.31	89.35	85.60	88.42	2.49

Table B8. The average percentage of superoxide inhibition of oxyresveratrol (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	8.34	9.24	3.98	7.19	2.81
3	10.00	13.71	12.64	10.62	12.32	1.57
4	25.00	26.25	28.72	25.96	26.98	1.52
5	50.00	56.52	57.13	56.77	56.81	0.31
6	100.00	94.32	93.73	95.47	94.51	0.88

Table B9. The average percentage of superoxide inhibition of Trolox® (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	16.96	15.11	21.24	17.77	3.14
3	10.00	30.05	32.93	31.20	31.39	1.45
4	25.00	47.20	45.68	44.96	45.95	1.14
5	50.00	69.00	68.10	66.27	67.79	1.39
6	100.00	92.69	92.93	92.71	92.78	0.13

Table B10. The average percentage of superoxide inhibition of l-ascorbic acid (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	4.76	4.80	4.93	4.83	0.09
3	10.00	13.38	14.67	16.00	14.68	1.31
4	25.00	30.97	34.74	34.03	33.25	2.00
5	50.00	54.96	54.43	62.53	57.31	4.53
6	100.00	50.20	43.39	50.91	48.17	4.15

Table B11. The average percentage of superoxide inhibition of EGCG (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	77.89	70.84	74.37	74.37	3.53
3	10.00	83.13	83.41	87.89	84.81	2.67
4	25.00	88.62	88.39	91.40	89.47	1.68
5	50.00	92.74	92.54	93.07	92.78	0.27
6	100.00	92.82	90.53	91.19	91.51	1.18

Table B12. The average percentage of superoxide inhibition of pine bark extract (Mean ± SD)

No	conc (µg/ml)	% inhibition			$\bar{x}$	SD
		N1	N2	N3		
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	61.16	62.29	58.67	60.71	1.85
3	10.00	85.33	84.48	82.38	84.06	1.52
4	25.00	92.98	92.27	91.71	92.32	0.64
5	50.00	94.36	92.74	93.23	93.44	0.83
6	100.00	88.22	90.27	88.80	89.10	1.06

Table B13.One-way analysis of variance on the IC_{50} values of superoxide radical inhibition

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	5893.474	5	1178.695	536.909	0.000
Within groups	26.344	12	2.195		
Total	5919.818	17			

Table B14. Multiple comparisons on the IC_{50} values of superoxide radical inhibition

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
5	3	2.843			
6	3	3.847			
3	3		24.897		
4	3			40.243	
2	3				44.313
1	3				44.113
Sig.		0.956	1.000	1.000	0.678

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table B15. One-way analysis of variance on the % inhibition at 5.0 µg/ml of superoxide radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	14664.44	5	2932.888	497.177	0.000
Within groups	70.789	12	5.899		
Total	1435.23	17			

Table B16. Multiple comparisons % inhibition at 5.0 µg/ml of superoxide radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
1	3	3.630			
4	3	4.830			
2	3	7.187			
3	3		17.770		
6	3			60.707	
5	3				74.367
Sig.		0.504	1.000	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table B17. One-way analysis of variance on the % inhibition at 10.0 µg/ml of superoxide radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	18703.84	5	3740.767	1145.587	0.000
Within groups	39.184	12	3.265		
Total	18743.02	17			

Table B18. Multiple comparisons % inhibition at 10.0 µg/ml of superoxide radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
1	3	11.640		
2	3	12.323		
4	3	14.683		
3	3		31.393	
6	3			84.063
5	3			84.810
Sig.		0.365	1.000	0.995

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table B19. One-way analysis of variance on the % inhibition at 25.0 µg/ml of superoxide radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	13986.43	5	2797.285	1104.068	0.000
Within groups	30.403	12	2.534		
Total	14016.83	17			

Table B20. Multiple comparisons % inhibition at 25.0 µg/ml of superoxide radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
2	3	26.977			
1	3	27.110			
4	3		33.247		
3	3			45.947	
5	3				89.470
6	3				92.320
Sig.		1.000	1.000	1.000	0.308

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table B21. One-way analysis of variance on the % inhibition at 50.0 µg/ml of superoxide radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	5053.750	5	1010.750	236.059	0.000
Within groups	51.381	12	4.282		
Total	5105.131	17			

Table B22. Multiple comparisons % inhibition at 50.0 µg/ml of superoxide radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
1	3	53.380		
2	3	56.807		
4	3	57.307		
3	3		67.790	
5	3			92.783
6	3			93.443
Sig.		0.257	1.000	0.996

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table B23. One-way analysis of variance on the % inhibition at 100.0 µg/mlof superoxide radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	4720.116	5	944.023	211.823	0.000
Within groups	53.480	12	4.457		
Total	4773.596	17			

Table B24. Multiple comparisons % inhibition at 100.0 µg/ml of superoxide radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
4	3	48.167		
1	3		88.420	
6	3		89.097	89.097
5	3		91.513	91.513
3	3		92.777	92.777
2	3			94.507
Sig.		1.000	0.190	0.072

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Appendix C

Data of Hydroxyl Radical Scavenging Activity

Table C1.The raw data for the absorbance and hydroxyl radical inhibition percentages of Puag-Haad

No	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 416 nm			Av		n	Abs at 416 nm			Av		n	Abs at 416 nm			Av	
			Abs	Blank	Diff				Abs	Blank	Diff				Abs	Blank	Diff		
1	0.00	1	0.490	0.000	0.490	0.492	0.00	1	0.491	0.000	0.491	0.475	0.00	1	0.596	0.000	0.596	0.567	0.00
		2	0.504	0.000	0.504			2	0.463	0.000	0.463			2	0.553	0.000	0.553		
		3	0.481	0.000	0.481			3	0.472	0.000	0.472			3	0.551	0.000	0.551		
2	5.00	1	0.352	0.007	0.345	0.344	29.97	1	0.368	0.007	0.361	0.345	27.42	1	0.393	0.007	0.386	0.385	32.00
		2	0.341	0.007	0.334			2	0.343	0.007	0.336			2	0.378	0.007	0.371		
		3	0.361	0.007	0.354			3	0.345	0.007	0.338			3	0.406	0.007	0.399		
3	10.00	1	0.252	0.008	0.244	0.238	51.66	1	0.233	0.008	0.225	0.234	50.70	1	0.263	0.009	0.254	0.259	54.35
		2	0.244	0.008	0.236			2	0.249	0.008	0.241			2	0.264	0.009	0.255		
		3	0.241	0.008	0.233			3	0.245	0.008	0.237			3	0.276	0.009	0.267		
4	20.00	1	0.153	0.012	0.141	0.145	70.44	1	0.155	0.012	0.143	0.149	68.72	1	0.165	0.012	0.153	0.152	73.12
		2	0.156	0.012	0.144			2	0.163	0.012	0.151			2	0.168	0.012	0.156		
		3	0.163	0.012	0.151			3	0.164	0.012	0.152			3	0.160	0.012	0.148		
5	50.00	1	0.108	0.018	0.090	0.078	84.20	1	0.068	0.018	0.050	0.053	84.64	1	0.098	0.018	0.080	0.080	85.82
		2	0.090	0.018	0.072			2	0.072	0.018	0.054			2	0.103	0.018	0.085		
		3	0.089	0.018	0.071			3	0.073	0.018	0.055			3	0.094	0.018	0.076		
6	100.00	1	0.089	0.033	0.056	0.058	88.20	1	0.074	0.033	0.041	0.040	91.58	1	0.085	0.033	0.052	0.054	90.41
		2	0.091	0.033	0.058			2	0.075	0.033	0.042			2	0.089	0.033	0.056		
		3	0.093	0.033	0.060			3	0.070	0.033	0.037			3	0.088	0.033	0.055		

Table C2. The raw data for the absorbance and hydroxyl radical inhibition percentages of oxyresveratrol

No	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 416 nm			Av		n	Abs at 416 nm			Av		n	Abs at 416nm			Av	
			Abs	Blank	Diff				Abs	Blank	Diff				Abs	Blank	Diff		
1	0.00	1	0.463	0.000	0.459	0.450	0.00	1	0.466	0.000	0.466	0.463	0.00	1	0.595	0.000	0.595	0.601	0.00
		2	0.445	0.000	0.441			2	0.458	0.000	0.458			2	0.585	0.000	0.585		
		3	0.455	0.000	0.451			3	0.465	0.000	0.465			3	0.622	0.000	0.622		
2	5.00	1	0.271	0.004	0.267	0.270	40.04	1	0.308	0.004	0.304	0.296	36.00	1	0.417	0.004	0.413	0.389	35.29
		2	0.282	0.004	0.278			2	0.288	0.004	0.284			2	0.378	0.004	0.374		
		3	0.269	0.004	0.265			3	0.305	0.004	0.301			3	0.383	0.004	0.379		
3	10.00	1	0.168	0.004	0.164	0.163	63.88	1	0.186	0.004	0.182	0.178	61.56	1	0.264	0.004	0.260	0.251	58.21
		2	0.163	0.004	0.159			2	0.178	0.004	0.174			2	0.258	0.004	0.254		
		3	0.169	0.004	0.165			3	0.182	0.004	0.178			3	0.243	0.004	0.239		
4	20.00	1	0.103	0.005	0.098	0.095	78.90	1	0.108	0.005	0.103	0.108	76.60	1	0.152	0.005	0.147	0.142	76.36
		2	0.104	0.005	0.099			2	0.114	0.005	0.109			2	0.146	0.005	0.141		
		3	0.093	0.005	0.088			3	0.118	0.005	0.113			3	0.143	0.005	0.138		
5	50.00	1	0.054	0.007	0.047	0.047	89.56	1	0.064	0.006	0.058	0.058	87.54	1	0.073	0.006	0.067	0.070	88.35
		2	0.054	0.007	0.047			2	0.063	0.006	0.057			2	0.080	0.006	0.074		
		3	0.054	0.007	0.047			3	0.064	0.006	0.058			3	0.075	0.006	0.069		
6	100.00	1	0.052	0.010	0.042	0.037	91.78	1	0.058	0.010	0.048	0.046	90.06	1	0.067	0.009	0.058	0.059	90.18
		2	0.044	0.010	0.034			2	0.060	0.010	0.050			2	0.068	0.009	0.059		
		3	0.045	0.010	0.035			3	0.050	0.010	0.040			3	0.069	0.009	0.060		

Table C3. The raw data for the absorbance and hydroxyl radical inhibition percentages of Trolox®

No	final conc (µg/ml)	N1						N2						N3					
		n	Abs at 416 nm			Av	% inh	n	Abs at 416 nm			Av	% inh	n	Abs at 416 nm			Av	% inh
			Abs	Blank	Diff				Abs	Blank	Diff				Abs	Blank	Diff		
1	0.00	1	0.440	0.000	0.440	0.454	0.00	1	0.403	0.000	0.403	0.405	0.00	1	0.424	0.000	0.424	0.441	0.00
		2	0.471	0.000	0.471			2	0.400	0.000	0.400			2	0.455	0.000	0.455		
		3	0.451	0.000	0.451			3	0.413	0.000	0.413			3	0.445	0.000	0.445		
2	0.50	1	0.386	0.000	0.386	0.383	15.57	1	0.353	0.000	0.353	0.349	13.90	1	0.378	0.000	0.378	0.371	16.01
		2	0.375	0.000	0.375			2	0.349	0.000	0.349			2	0.364	0.000	0.364		
		3	0.389	0.000	0.389			3	0.345	0.000	0.345			3	0.370	0.000	0.370		
3	1.00	1	0.339	0.000	0.339	0.330	27.24	1	0.320	0.000	0.320	0.316	22.12	1	0.339	0.000	0.339	0.331	24.92
		2	0.330	0.000	0.330			2	0.319	0.000	0.319			2	0.316	0.000	0.316		
		3	0.322	0.000	0.322			3	0.308	0.000	0.308			3	0.339	0.000	0.339		
4	2.00	1	0.284	0.000	0.284	0.270	40.60	1	0.247	0.001	0.246	0.237	41.45	1	0.241	0.000	0.241	0.249	43.66
		2	0.272	0.000	0.272			2	0.249	0.001	0.248			2	0.257	0.000	0.257		
		3	0.253	0.000	0.253			3	0.219	0.001	0.218			3	0.248	0.000	0.248		
5	5.00	1	0.090	0.002	0.088	0.094	79.22	1	0.054	0.003	0.051	0.053	86.92	1	0.044	0.003	0.041	0.050	88.75
		2	0.107	0.002	0.105			2	0.059	0.003	0.056			2	0.054	0.003	0.051		
		3	0.092	0.002	0.090			3	0.055	0.003	0.052			3	0.060	0.003	0.057		
6	10.00	1	0.023	0.003	0.020	0.020	95.59	1	0.020	0.004	0.016	0.018	95.48	1	0.015	0.003	0.012	0.012	97.28
		2	0.022	0.003	0.019			2	0.025	0.004	0.021			2	0.014	0.003	0.011		
		3	0.024	0.003	0.021			3	0.022	0.004	0.018			3	0.016	0.003	0.013		
7	20.00	1	0.017	0.005	0.012	0.012	97.36	1	0.019	0.005	0.014	0.014	96.46	1	0.013	0.005	0.008	0.008	98.26
		2	0.018	0.005	0.013			2	0.019	0.005	0.014			2	0.012	0.005	0.007		
		3	0.016	0.005	0.011			3	0.020	0.005	0.015			3	0.013	0.005	0.008		

Table C4. The raw data for the absorbance and hydroxyl radical inhibition percentages of l-ascorbic acid

No	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 416 nm			Av		n	Abs at 416 nm			Av		n	Abs at 416 nm			Av	
			Abs	Blank	Diff				Abs	Blank	Diff				Abs	Blank	Diff		
1	0.00	1	0.520	0.000	0.519	0.524	0.00	1	0.509	0.000	0.509	0.506	0.00	1	0.416	0.000	0.416	0.410	0.00
		2	0.518	0.000	0.517			2	0.520	0.000	0.520			2	0.423	0.000	0.423		
		3	0.538	0.000	0.537			3	0.489	0.000	0.489			3	0.392	0.000	0.392		
2	0.50	1	0.455	0.000	0.455	0.449	14.37	1	0.376	0.000	0.376	0.371	26.75	1	0.319	0.000	0.319	0.319	22.34
		2	0.448	0.000	0.448			2	0.384	0.000	0.384			2	0.326	0.000	0.326		
		3	0.444	0.000	0.444			3	0.352	0.000	0.352			3	0.311	0.000	0.311		
3	1.00	1	0.336	0.001	0.335	0.318	39.35	1	0.333	0.001	0.332	0.331	34.65	1	0.297	0.001	0.296	0.269	34.36
		2	0.317	0.001	0.316			2	0.341	0.001	0.340			2	0.265	0.001	0.264		
		3	0.304	0.001	0.303			3	0.321	0.001	0.320			3	0.249	0.001	0.248		
4	2.00	1	0.216	0.002	0.214	0.212	59.50	1	0.228	0.002	0.226	0.215	57.44	1	0.191	0.002	0.189	0.172	58.16
		2	0.210	0.002	0.208			2	0.222	0.002	0.220			2	0.163	0.002	0.161		
		3	0.217	0.002	0.215			3	0.202	0.002	0.200			3	0.167	0.002	0.165		
5	5.00	1	0.023	0.002	0.021	0.021	96.06	1	0.012	0.002	0.010	0.010	98.02	1	0.023	0.002	0.021	0.022	94.64
		2	0.025	0.002	0.023			2	0.012	0.002	0.010			2	0.022	0.002	0.020		
		3	0.020	0.002	0.018			3	0.012	0.002	0.010			3	0.027	0.002	0.025		
6	10.00	1	0.013	0.002	0.011	0.011	97.84	1	0.009	0.002	0.007	0.007	98.62	1	0.020	0.002	0.018	0.017	95.86
		2	0.014	0.002	0.012			2	0.009	0.002	0.007			2	0.018	0.002	0.016		
		3	0.013	0.002	0.011			3	0.009	0.002	0.007			3	0.019	0.002	0.017		

Table C5. The raw data for the absorbance and hydroxyl radical inhibition percentages of EGCG

No	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 416 nm			Av		n	Abs at 416 nm			Av		n	Abs at 416 nm			Av	
			Abs	Blank	Diff				Abs	Blank	Diff				Abs	Blank	Diff		
1	0.00	1	0.478	0.000	0.471	0.465	0.00	1	0.420	0.000	0.420	0.460	0.00	1	0.606	0.000	0.606	0.601	0.00
		2	0.461	0.000	0.454			2	0.489	0.000	0.489			2	0.590	0.000	0.590		
		3	0.478	0.000	0.471			3	0.472	0.000	0.472			3	0.606	0.000	0.606		
2	5.00	1	0.297	0.007	0.290	0.272	41.62	1	0.255	0.007	0.248	0.248	46.20	1	0.320	0.006	0.314	0.305	49.17
		2	0.279	0.007	0.272			2	0.261	0.007	0.254			2	0.305	0.006	0.299		
		3	0.260	0.007	0.253			3	0.248	0.007	0.241			3	0.309	0.006	0.303		
3	10.00	1	0.162	0.007	0.155	0.155	66.69	1	0.182	0.007	0.175	0.168	63.43	1	0.211	0.007	0.204	0.197	67.20
		2	0.162	0.007	0.155			2	0.175	0.007	0.168			2	0.206	0.007	0.199		
		3	0.162	0.007	0.155			3	0.169	0.007	0.162			3	0.195	0.007	0.188		
4	20.00	1	0.131	0.007	0.124	0.124	73.35	1	0.126	0.007	0.119	0.128	72.27	1	0.145	0.007	0.138	0.143	76.25
		2	0.132	0.007	0.125			2	0.147	0.007	0.140			2	0.146	0.007	0.139		
		3	0.130	0.007	0.123			3	0.131	0.007	0.124			3	0.158	0.007	0.151		
5	50.00	1	0.092	0.007	0.085	0.088	81.02	1	0.103	0.007	0.096	0.093	79.87	1	0.102	0.007	0.095	0.100	83.41
		2	0.096	0.007	0.089			2	0.098	0.007	0.091			2	0.106	0.007	0.099		
		3	0.098	0.007	0.091			3	0.098	0.007	0.091			3	0.112	0.007	0.105		
6	100.00	1	0.079	0.007	0.072	0.073	84.38	1	0.089	0.007	0.082	0.080	82.69	1	0.088	0.007	0.081	0.088	85.29
		2	0.078	0.007	0.071			2	0.087	0.007	0.080			2	0.088	0.007	0.081		
		3	0.082	0.007	0.075			3	0.084	0.007	0.077			3	0.110	0.007	0.103		

Table C6. The raw data for the absorbance and hydroxyl radical inhibition percentages of pine bark extract

No	final conc (µg/ml)	N1					% inh	N2					% inh	N3					% inh
		n	Abs at 416 nm					n	Abs at 416 nm					n	Abs at 416 nm				
			Abs	Blank	Diff	Av			Abs	Blank	Diff	Av			Abs	Blank	Diff	Av	
1	0.00	1	0.463	0.000	0.458	0.472	0.00	1	0.500	0.000	0.500	0.484	0.00	1	0.545	0.000	0.545	0.540	0.00
		2	0.471	0.000	0.466			2	0.497	0.000	0.497			2	0.536	0.000	0.536		
		3	0.497	0.000	0.492			3	0.453	0.000	0.453			3	0.540	0.000	0.540		
2	5.00	1	0.453	0.003	0.450	0.448	5.16	1	0.453	0.003	0.450	0.449	7.21	1	0.502	0.003	0.499	0.488	9.66
		2	0.443	0.003	0.440			2	0.450	0.003	0.447			2	0.481	0.003	0.478		
		3	0.456	0.003	0.453			3	0.452	0.003	0.449			3	0.490	0.003	0.487		
3	10.00	1	0.389	0.005	0.384	0.375	20.48	1	0.383	0.004	0.379	0.381	21.19	1	0.459	0.005	0.454	0.446	17.49
		2	0.377	0.005	0.372			2	0.382	0.004	0.378			2	0.453	0.005	0.448		
		3	0.376	0.005	0.371			3	0.390	0.004	0.386			3	0.440	0.005	0.435		
4	20.00	1	0.326	0.008	0.318	0.319	32.43	1	0.363	0.008	0.355	0.339	29.84	1	0.392	0.008	0.384	0.375	30.54
		2	0.330	0.008	0.322			2	0.352	0.008	0.344			2	0.389	0.008	0.381		
		3	0.324	0.008	0.316			3	0.326	0.008	0.318			3	0.369	0.008	0.361		
5	50.00	1	0.262	0.018	0.244	0.240	49.15	1	0.279	0.018	0.261	0.262	45.89	1	0.329	0.018	0.311	0.287	46.88
		2	0.255	0.018	0.237			2	0.287	0.018	0.269			2	0.293	0.018	0.275		
		3	0.257	0.018	0.239			3	0.272	0.018	0.254			3	0.293	0.018	0.275		
6	100.00	1	0.208	0.033	0.175	0.179	61.99	1	0.225	0.032	0.193	0.193	60.01	1	0.256	0.032	0.224	0.219	59.56
		2	0.216	0.033	0.183			2	0.210	0.032	0.178			2	0.250	0.032	0.218		
		3	0.214	0.033	0.181			3	0.241	0.032	0.209			3	0.246	0.032	0.214		
7	200.00	1	0.212	0.070	0.142	0.134	71.59	1	0.204	0.070	0.134	0.141 ,	70.78	1	0.251	0.069	0.182	0.168	68.93
		2	0.209	0.070	0.139			2	0.211	0.070	0.141			2	0.233	0.069	0.164		
		3	0.191	0.070	0.121			3	0.218	0.070	0.148			3	0.227	0.069	0.158		

Table C7. The average percentage of hydroxyl radical inhibition of Puag-Haad (Mean ± SD)

No.	final conc (µg/ml)	% inhibition			Puag-Haad	
		N1	N2	N3	$\bar{x}$	SD
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	29.97	27.42	32.00	29.80	2.29
3	10.00	51.67	50.70	54.35	52.24	1.89
4	20.00	70.44	68.72	73.12	70.76	2.22
5	50.00	84.20	84.64	85.82	84.89	0.84
6	100.00	88.20	91.58	90.41	90.06	1.72

Table C8. The average percentage of hydroxyl radical inhibition of oxyresveratrol (Mean ± SD)

No.	final conc (µg/ml)	% inhibition			oxyresveratrol	
		N1	N2	N3	$\bar{x}$	SD
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	40.04	36.00	35.29	37.11	2.56
3	10.00	63.88	61.56	58.21	61.22	2.85
4	20.00	78.90	76.60	76.36	77.29	1.40
5	50.00	89.56	87.54	88.35	88.48	1.02
6	100.00	91.78	90.06	90.18	90.67	0.96

Table C9. The average percentage of hydroxyl radical inhibition of Trolox® (Mean ± SD)

No.	final conc (µg/ml)	% inhibition			Trolox	
		N1	N2	N3	$\bar{x}$	SD
1	0.00	0.00	0.00	0.00	0.00	0.00
2	0.50	15.57	13.90	16.01	15.16	1.11
3	1.00	27.24	22.12	24.92	24.76	2.56
4	2.00	40.60	41.45	43.66	41.90	1.58
5	5.00	79.22	86.92	88.75	84.96	5.06
6	10.00	95.59	95.48	97.28	96.12	1.01
7	20.00	97.36	96.46	98.26	97.36	0.90

Table C10. The average percentage of hydroxyl radical inhibition of l-ascorbic acid (Mean ± SD)

No.	final conc (µg/ml)	% inhibition			l-ascorbic acid	
		N1	N2	N3	$\bar{x}$	SD
1	0.00	0.00	0.00	0.00	0.00	0.00
2	0.50	14.37	26.75	22.34	21.15	6.27
3	1.00	39.35	34.65	34.36	36.12	2.80
4	2.00	59.50	57.44	58.16	58.37	1.05
5	5.00	96.06	98.02	94.64	96.24	1.70
6	10.00	97.84	98.62	95.86	97.44	1.42

Table C11. The average percentage of hydroxyl radical inhibition of EGCG (Mean ± SD)

No.	final conc (µg/ml)	% inhibition			EGCG	
		N1	N2	N3	$\bar{x}$	SD
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	41.62	46.20	49.17	45.66	3.80
3	10.00	66.69	63.43	67.20	65.77	2.05
4	20.00	73.35	72.27	76.25	73.96	2.06
5	50.00	81.02	79.87	83.41	81.43	1.81
6	100.00	84.38	82.69	85.29	84.12	1.32

Table C12. The average percentage of hydroxyl raadical inhibition of pine bark extract (Mean ± SD)

No.	final conc (µg/ml)	% inhibition			pine bark extract	
		N1	N2	N3	$\bar{x}$	SD
1	0.00	0.00	0.00	0.00	0.00	0.00
2	5.00	5.16	7.21	9.66	7.34	2.25
3	10.00	20.48	21.19	17.49	19.72	1.96
4	20.00	32.43	29.84	30.54	30.94	1.34
5	50.00	49.15	45.89	46.88	47.31	1.67
6	100.00	61.99	60.01	59.56	60.52	1.29
7	200.00	71.59	70.78	68.93	70.43	1.36

Table C13.One-way analysis of variance on the IC_{50} values of hydroxyl radical inhibition

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	4789.145	5	957.829	622.922	0.000
Within groups	18.452	12	1.5.38		
Total	4807.597	17			

Table C14. Multiple comparisons on the IC_{50} values of hydroxyl radical inhibition

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
4	3	1.570		
3	3	2.390		
5	3		6.203	
2	3		7.413	
1	3		9.473	
6	3			48.556
Sig.		0.96	0.62	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table C15. One-way analysis of variance on the % inhibition at 5.0 µg/ml of hydroxyl radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	17319.270	5	3463.853	347.365	0.000
Within groups	119.662	12	9.972		
Total	17438.930	17			

Table C16. Multiple comparisons % inhibition at 5.0 µg/ml of hydroxyl radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05				
		1	2	3	4	5
6	3	7.343				
1	3		29.797			
2	3		37.110	37.110		
5	3			45.663		
3	3				84.963	
4	3					96.240
Sig.		1.000	0.118	0.054	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table C17. One-way analysis of variance on the % inhibition at 10.0 µg/ml of hydroxyl radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	12742.68	5	2548.537	671.212	0.000
Within groups	45.563	12	3.797		
Total	12788.25	17			

Table C18. Multiple comparisons % inhibition at 10.0 µg/ml of hydroxyl radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
6	3	19.720			
1	3		52.240		
2	3			61.217	
5	3			65.773	
3	3				96.117
4	3				97.440
Sig.		1.000	1.000	0.113	0.956

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Table C19. One-way analysis of variance on the % inhibition at the highest concentration of hydroxyl radical test

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	1533.124	5	306.625	178.573	0.000
Within groups	20.605	12	1.717		
Total	1553.729	17			

Table C20. Multiple comparisons % inhibition at the highest concentration of hydroxyl radical test

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
6	3	70.433			
5	3		84.120		
1	3			90.063	
2	3			90.673	
3	3				97.360
4	3				97.440
Sig.		1.000	1.000	0.991	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = Puag-Haad, 2 = oxyresveratrol, 3 = Trolox®, 4 = l-ascorbic acid, 5 = EGCG and 6 = pine bark extract

Appendix D

Data of Hemolysis test

Table D1.The raw data for the absorbance values and the percentage of hemolysis of Puag-Haad; (a) before UV –irradiation and (b) after UB -irradiation

(a)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.811	0.030	0.781	0.083	0.030	0.053	6.79	5.83	1.03
	2	0.819	0.030	0.789	0.077	0.030	0.047	5.96		
	3	0.831	0.029	0.802	0.067	0.029	0.038	4.74		
200	1	0.802	0.047	0.755	0.060	0.047	0.013	1.72	1.40	0.66
	2	0.821	0.046	0.775	0.051	0.046	0.005	0.65		
	3	0.808	0.048	0.760	0.062	0.048	0.014	1.84		
400	1	0.790	0.060	0.730	0.117	0.060	0.057	.7.81	7.94	0.19
	2	0.789	0.063	0.726	0.120	0.063	0.057	7.85		
	3	0.796	0.061	0.735	0.121	0.061	0.060	8.16		
600	1	0.793	0.074	0.719	0.089	0.074	0.015	2.09	0.88	1.05
	2	0.780	0.073	0.707	0.074	0.073	0.001	0.14		
	3	0.794	0.073	0.721	0.076	0.073	0.003	0.42		

(b)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.585	0.029	0.556	0.555	0.029	0.526	94.60	90.06	4.60
	2	0.646	0.029	0.617	0.556	0.029	0.527	85.41		
	3	0.629	0.029	0.600	0.570	0.029	0.541	90.17		
200	1	0.598	0.047	0.551	0.382	0.047	0.335	60.80	61.15	0.67
	2	0.594	0.053	0.541	0.388	0.053	0.335	61.92		
	3	0.599	0.054	0.545	0.385	0.054	0.331	60.73		
400	1	0.581	0.067	0.514	0.230	0.067	0.163	31.71	30.88	0.93
	2	0.607	0.068	0.539	0.229	0.068	0.161	29.87		
	3	0.606	0.062	0.544	0.231	0.062	0.169	31.07		
600	1	0.624	0.077	0.547	0.177	0.077	0.100	18.28	13.48	6.05
	2	0.638	0.085	0.553	0.122	0.085	0.037	6.69		
	3	0.639	0.083	0.556	0.169	0.083	0.086	15.47		

Table D2.The raw data for the absorbance values and the percentage of hemolysis of oxyresvertrol; (a) before UV –irradiation and (b) after UB -irradiation

(a)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.753	0.031	0.722	0.055	0.031	0.024	3.31	3.50	0.49
	2	0.757	0.032	0.725	0.055	0.032	0.023	3.15		
	3	0.761	0.031	0.730	0.061	0.031	0.030	4.06		
200	1	0.751	0.039	0.712	0.056	0.039	0.017	2.43	2.97	0.47
	2	0.767	0.036	0.731	0.059	0.036	0.023	3.19		
	3	0.755	0.046	0.709	0.069	0.046	0.023	3.28		
400	1	0.761	0.050	0.711	0.069	0.050	0.019	2.62	3.23	0.96
	2	0.775	0.055	0.720	0.086	0.055	0.031	4.34		
	3	0.748	0.054	0.694	0.073	0.054	0.019	2.74		
600	1	0.749	0.062	0.687	0.097	0.062	0.035	5.04	5.37	0.30
	2	0.755	0.065	0.690	0.103	0.065	0.038	5.45		
	3	0.746	0.063	0.683	0.101	0.063	0.038	5.62		

(b)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.574	0.029	0.545	0.526	0.029	0.497	91.19	91.54	0.82
	2	0.563	0.032	0.531	0.515	0.032	0.483	90.95		
	3	0.570	0.038	0.532	0.530	0.038	0.492	92.48		
200	1	0.515	0.040	0.475	0.294	0.040	0.254	53.48	51.35	2.27
	2	0.511	0.042	0.469	0.284	0.042	0.242	51.59		
	3	0.519	0.049	0.470	0.279	0.049	0.230	48.97		
400	1	0.518	0.052	0.466	0.228	0.052	0.176	37.75	35.05	2.46
	2	0.517	0.055	0.462	0.214	0.055	0.159	34.46		
	3	0.525	0.060	0.465	0.213	0.060	0.153	32.93		
600	1	0.522	0.072	0.450	0.123	0.072	0.051	11.25	13.34	1.91
	2	0.524	0.069	0.455	0.137	0.069	0.068	15.00		
	3	0.539	0.065	0.474	0.130	0.065	0.065	13.75		

Table D3.The raw data for the absorbance values and the percentage of hemolysis of Trolox®; (a) before UV –irradiation and (b) after UB -irradiation

(a)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.808	0.031	0.777	0.066	0.031	0.035	4.50	6.39	1.63
	2	0.820	0.030	0.790	0.088	0.030	0.058	7.34		
	3	0.807	0.028	0.779	0.085	0.028	0.057	7.32		
200	1	0.803	0.029	0.774	0.061	0.029	0.032	4.13	4.80	0.63
	2	0.790	0.028	0.762	0.069	0.028	0.041	5.38		
	3	0.787	0.028	0.759	0.065	0.028	0.037	4.87		
400	1	0.794	0.028	0.766	0.075	0.028	0.047	6.14	6.32	0.54
	2	0.793	0.028	0.765	0.081	0.028	0.053	6.93		
	3	0.791	0.029	0.762	0.074	0.029	0.045	5.91		
600	1	0.793	0.029	0.764	0.077	0.029	0.048	6.28	6.13	1.51
	2	0.776	0.029	0.747	0.063	0.029	0.034	4.55		
	3	0.784	0.029	0.755	0.086	0.029	0.057	7.55		

(b)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.601	0.029	0.572	0.585	0.029	0.556	97.20	96.74	1.10
	2	0.604	0.029	0.575	0.578	0.029	0.549	95.48		
	3	0.596	0.029	0.567	0.582	0.029	0.553	97.53		
200	1	0.456	0.030	0.426	0.448	0.030	0.418	98.12	97.12	1.55
	2	0.459	0.030	0.429	0.450	0.030	0.420	97.90		
	3	0.458	0.030	0.428	0.438	0.030	0.408	95.33		
400	1	0.437	0.034	0.403	0.427	0.034	0.393	97.52	97.02	1.29
	2	0.439	0.034	0.405	0.421	0.034	0.387	95.56		
	3	0.433	0.034	0.399	0.425	0.034	0.391	97.99		
600	1	0.436	0.034	0.402	0.418	0.034	0.384	95.52	94.58	1.67
	2	0.440	0.035	0.405	0.422	0.035	0.387	95.56		
	3	0.441	0.033	0.408	0.411	0.033	0.378	92.65		

Table D4.The raw data for the absorbance values and the percentage of hemolysis of l-ascorbic acid; (a) before UV –irradiation and (b) after UB -irradiation

(a)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.749	0.030	0.719	0.067	0.030	0.037	5.16	4.40	0.75
	2	0.739	0.028	0.711	0.059	0.028	0.031	4.39		
	3	0.779	0.031	0.748	0.058	0.031	0.027	3.66		
200	1	0.778	0.030	0.748	0.051	0.030	0.021	2.83	5.76	2.86
	2	0.771	0.027	0.744	0.071	0.027	0.044	5.90		
	3	0.775	0.028	0.747	0.092	0.028	0.064	8.55		
400	1	0.770	0.029	0.741	0.076	0.029	0.047	6.32	6.57	1.41
	2	0.776	0.030	0.746	0.090	0.030	0.060	8.08		
	3	0.777	0.030	0.747	0.070	0.030	0.040	5.30		
600	1	0.770	0.028	0.742	0.058	0.028	0.030	3.99	4.34	0.57
	2	0.780	0.030	0.750	0.060	0.030	0.030	4.04		
	3	0.776	0.028	0.748	0.065	0.028	0.037	5.00		

(b)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.555	0.030	0.525	0.554	0.030	0.524	99.81	96.60	3.06
	2	0.574	0.031	0.543	0.540	0.031	0.509	93.72		
	3	0.568	0.030	0.538	0.548	0.030	0.518	96.28		
200	1	0.626	0.031	0.595	0.570	0.031	0.539	90.59	92.73	1.88
	2	0.613	0.030	0.583	0.575	0.030	0.545	93.48		
	3	0.608	0.030	0.578	0.574	0.030	0.544	94.12		
400	1	0.641	0.031	0.610	0.580	0.031	0.549	90.00	92.37	2.11
	2	0.622	0.034	0.588	0.587	0.034	0.553	94.05		
	3	0.626	0.034	0.592	0.585	0.034	0.551	93.07		
600	1	0.661	0.036	0.625	0.610	0.036	0.574	91.84	92.46	2.85
	2	0.646	0.036	0.610	0.619	0.036	0.583	95.57		
	3	0.660	0.032	0.628	0.597	0.032	0.565	89.97		

Table D5.The raw data for the absorbance values and the percentage of hemolysis of EGCG; (a) before UV –irradiation and (b) after UB -irradiation

(a)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.788	0.031	0.757	0.069	0.031	0.038	5.02	5.02	0.30
	2	0.781	0.028	0.753	0.068	0.028	0.040	5.31		
	3	0.792	0.029	0.763	0.065	0.029	0.036	4.72		
200	1	0.805	0.040	0.765	0.060	0.040	0.020	2.61	3.41	0.75
	2	0.796	0.039	0.757	0.070	0.039	0.031	4.10		
	3	0.808	0.039	0.769	0.066	0.039	0.027	3.51		
400	1	0.791	0.042	0.749	0.065	0.042	0.023	3.07	3.37	0.53
	2	0.796	0.045	0.751	0.068	0.045	0.023	3.06		
	3	0.800	0.046	0.754	0.076	0.046	0.030	3.98		
600	1	0.776	0.045	0.731	0.066	0.045	0.021	2.87	3.76	1.79
	2	0.789	0.052	0.737	0.071	0.052	0.019	2.58		
	3	0.783	0.044	0.739	0.087	0.044	0.043	5.82		

(b)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.593	0.028	0.565	0.569	0.028	0.541	95.75	95.26	1.05
	2	0.600	0.029	0.571	0.577	0.029	0.548	95.97		
	3	0.601	0.029	0.572	0.567	0.029	0.538	94.06		
200	1	0.589	0.049	0.540	0.508	0.049	0.459	85.00	90.98	5.28
	2	0.599	0.040	0.559	0.571	0.040	0.531	94.99		
	3	0.594	0.042	0.552	0.555	0.042	0.513	92.93		
400	1	0.591	0.049	0.542	0.519	0.049	0.470	86.72	87.72	1.25
	2	0.592	0.048	0.544	0.523	0.048	0.475	87.32		
	3	0.591	0.049	0.542	0.532	0.049	0.483	89.11		
600	1	0.677	0.063	0.614	0.478	0.063	0.415	67.59	71.46	6.89
	2	0.579	0.064	0.515	0.473	0.064	0.409	79.42		
	3	0.675	0.065	0.610	0.476	0.065	0.411	67.38		

Table D6.The raw data for the absorbance values and the percentage of hemolysis of pine bark extract; (a) before UV –irradiation and (b) after UB -irradiation

(a)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.746	0.027	0.719	0.077	0.027	0.050	6.95	6.41	0.47
	2	0.783	0.027	0.756	0.073	0.027	0.046	6.08		
	3	0.770	0.028	0.742	0.074	0.028	0.046	6.20		
200	1	0.873	0.085	0.788	0.109	0.085	0.024	3.05	3.69	0.78
	2	0.873	0.082	0.791	0.118	0.082	0.036	4.55		
	3	0.893	0.086	0.807	0.114	0.086	0.028	3.47		
400	1	0.810	0.054	0.756	0.097	0.054	0.043	-5.69	6.51	1.45
	2	0.832	0.054	0.778	0.098	0.054	0.044	5.66		
	3	0.814	0.056	0.758	0.118	0.056	0.062	8.18		
600	1	1.111	0.101	1.010	0.114	0.101	0.013	1.29	1.33	0.31
	2	1.123	0.101	1.022	0.118	0.101	0.017	1.66		
	3	1.155	0.106	1.049	0.117	0.106	0.011	1.05		

(b)

Conc (μg/ml)	n	Sample in water			Sample in PBS			% hemolysis	average	SD
		abs	blank	diff	abs	blank	diff			
0 (control)	1	0.546	0.033	0.513	0.542	0.033	0.509	99.22	97.88	2.67
	2	0.541	0.029	0.512	0.539	0.029	0.510	99.61		
	3	0.567	0.029	0.538	0.539	0.029	0.510	94.80		
200	1	0.537	0.091	0.446	0.282	0.091	0.191	42.83	42.97	1.13
	2	0.531	0.094	0.437	0.287	0.094	0.193	44.16		
	3	0.530	0.091	0.439	0.275	0.091	0.184	41.91		
400	1	0.519	0.065	0.454	0.212	0.065	0.147	32.38	32.02	0.33
	2	0.524	0.067	0.457	0.212	0.067	0.145	31.73		
	3	0.522	0.068	0.454	0.213	0.068	0.145	31.94		
600	1	0.553	0.132	0.421	0.163	0.132	0.031	7.36	7.00	1.12
	2	0.556	0.138	0.418	0.162	0.138	0.024	5.74		
	3	0.560	0.142	0.418	0.175	0.142	0.033	7.89		

Table D7.The average value of percent hemolysis for Puag-Haad after correction for the non-UV induced hemolysis.

Conc (μg/ml)	Average % hemolysis	% Hemolysis	% Hemolysis after 1.5 hr	Average % hemolysis	SD
	5.83	94.60	88.78	84.23	4.60
0		85.41	79.59		
(control)		90.17	84.34		
	1.40	60.80	59.40	59.75	0.67
200		61.92	60.52		
		60.73	59.33		
	7.94	31.71	23.77	22.94	0.93
400		29.87	21.93		
		31.07	23.13		
	0.88	18.28	17.40	12.60	6.05
600		6.69	5.81		
		15.47	14.59		

Table D8.The average value of percent hemolysis for oxyresveratrol after correction for the non-UV induced hemolysis.

Conc (μg/ml)	Average % hemolysis	% Hemolysis	% Hemolysis after 1.5 hr	Average % hemolysis	SD
	3.50	91.19	87.69	88.04	0.82
0		90.95	87.45		
(control)		92.48	88.98		
	2.97	53.48	50.52	48.38	2.27
200		51.59	48.62		
		48.97	46.00		
	3.23	37.75	34.52	31.82	2.46
400		34.46	31.23		
		32.93	29.70		
	5.37	11.25	5.88	7.96	1.91
600		15.00	9.63		
		13.75	8.38		

Table D9.The average value of percent hemolysis for Trolox® after correction for the non-UV induced hemolysis.

Conc (μg/ml)	Average % hemolysis	% Hemolysis	% Hemolysis after 1.5 hr	Average % hemolysis	SD
	6.39	97.20	90.82	90.35	1.10
0		95.48	89.09		
(control)		97.53	91.14		
	4.80	98.12	93.33	92.32	1.55
200		97.90	93.11		
		95.33	90.53		
	6.32	97.52	91.20	90.70	1.29
400		95.56	89.23		
		97.99	91.67		
	6.13	95.52	89.39	88.45	1.67
600		95.56	89.43		
		92.65	86.52		

Table D10.The average value of percent hemolysis for l-ascorbic acid after correction for the non-UV induced hemolysis.

Conc (μg/ml)	Average % hemolysis	% Hemolysis	% Hemolysis after 1.5 hr	Average % hemolysis	SD
	4.40	99.81	95.41	92.20	3.06
0		93.72	89.32		
(control)		96.28	91.88		
	5.76	90.59	84.83	86.97	1.88
200		93.48	87.72		
		94.12	88.35		
	6.57	90.00	83.43	85.81	2.11
400		94.05	87.48		
		93.07	86.51		
	4.34	91.84	87.50	88.12	2.85
600		95.57	91.23		
		89.97	85.63		

Table D11.The average value of percent hemolysis for EGCG after correction for the non-UV induced hemolysis.

Conc (μg/ml)	Average % hemolysis	% Hemolysis	% Hemolysis after 1.5 hr	Average % hemolysis	SD
	5.02	95.75	90.74	90.24	1.05
0		95.97	90.96		
(control)		94.06	89.04		
	3.41	85.00	81.59	87.57	5.28
200		94.99	91.58		
		92.93	89.53		
	3.37	86.72	83.35	84.34	1.25
400		87.32	83.95		
		89.11	85.74		
	3.76	67.59	63.83	67.70	6.89
600		79.42	75.66		
		67.38	63.62		

Table D12.The average value of percent hemolysis for pine bark extract after correction for the non-UV induced hemolysis.

Conc (μg/ml)	Average % hemolysis	% Hemolysis	% Hemolysis after 1.5 hr	Average % hemolysis	SD
	6.41	99.22	92.81	91.46	2.67
0		99.61	93.20		
(control)		94.80	88.38		
	3.69	42.83	39.14	39.28	1.13
200		44.16	40.48		
		41.91	38.22		
	6.51	32.38	25.87	25.51	0.33
400		31.73	25.22		
		31.94	25.43		
	1.33	7.36	6.03	5.67	1.12
600		5.74	4.41		
		7.89	6.56		

Table D13. The average values of percent relative hemolysis of Puag-Haad

Conc (μg/ml)	% Hemolysis (corrected)	% Relative hemolysis	Average	SD
	88.78	105.39	100.00	5.46
0	79.59	94.48		
(control)	84.34	100.12		
	59.40	70.51	70.93	0.79
200	60.52	71.85		
	59.33	70.44		
	23.77	28.22	27.24	1.11
400	21.93	26.03		
	23.13	27.45		
	17.40	20.66	14.96	7.18
600	5.81	6.90		
	14.59	17.32		

Table D14. The average values of percent relative hemolysis of oxyresveratrol

Conc (μg/ml)	% Hemolysis (corrected)	% Relative hemolysis	Average	SD
	87.69	99.60	100.00	0.93
0	87.45	99.33		
(control)	88.98	101.07		
	50.52	57.38	54.95	2.58
200	48.62	55.23		
	46.00	52.25		
	34.52	39.22	36.14	2.80
400	31.23	35.47		
	29.70	33.74		
	5.88	6.68	9.05	2.17
600	9.63	10.94		
	8.38	9.52		

Table D15. The average values of percent relative hemolysis of Trolox®

Conc (µg/ml)	% Hemolysis (corrected)	% Relative hemolysis	Average	SD
	90.82	100.52	100.00	1.22
0	89.09	98.61		
(control)	91.14	100.88		
	93.33	103.29	102.18	1.72
200	93.11	103.05		
	90.53	100.20		
	91.20	100.94	100.39	1.43
400	89.23	98.76		
	91.67	101.46		
	89.39	98.94	97.89	1.85
600	89.43	98.98		
	86.52	95.76		

Table D16. The average values of percent relative hemolysis of l-ascorbic acid

Conc (µg/ml)	% Hemolysis (corrected)	% Relative hemolysis	Average	SD
	95.41	103.48	100.00	3.32
0	89.32	96.87		
(control)	91.88	99.65		
	84.83	92.00	94.32	2.04
200	87.72	95.14		
	88.35	95.83		
	83.43	90.49	93.07	2.29
400	87.48	94.88		
	86.51	93.83		
	87.50	94.90	95.57	3.10
600	91.23	98.95		
	85.63	92.87		

Table D17. The average values of percent relative hemolysis of EGCG

Conc (µg/ml)	% Hemolysis (corrected)	% Relative hemolysis	Average	SD
	90.74	100.55	100.00	1.16
0	90.96	100.79		
(control)	89.04	98.67		
	81.59	90.41	97.04	5.85
200	91.58	101.49		
	89.53	99.21		
	83.35	92.36	93.46	1.38
400	83.95	93.02		
	85.74	95.01		
	63.83	70.73	75.02	7.64
600	75.66	83.84		
	63.62	70.50		

Table D18. The average values of percent relative hemolysis of pine bark extract

Conc (µg/ml)	% Hemolysis (corrected)	% Relative hemolysis	Average	SD
	92.81	101.47	100.00	2.92
0	93.20	101.90		
(control)	88.38	96.63		
	39.14	42.79	42.95	1.24
200	40.48	44.25		
	38.22	41.79		
	25.87	28.29	27.89	0.36
400	25.22	27.58		
	25.43	27.80		
	6.03	6.59	6.20	1.23
600	4.41	4.82		
	6.56	7.17		

Table D19. One-way analysis of variance on the percent hemolysis at various concentration of Puag-Haad

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	9879.839	3	3293.280	223.301	0.000
Within groups	117.985	8	14.748		
Total	9997.825	11			

Table D20. Multiple comparisons on the percent hemolysis at various concentration of Puag-Haad

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
4	3	12.600			
3	3		22.943		
2	3			59.750	
1	3				84.237
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = 0 µg/ml, 2 = 200 µg/ml, 3 = 400 µg/ml, 4 = 600 µg/ml

Table D21. One-way analysis of variance on the percent hemolysis at various concentration of oxyresveratrol

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	10217.31	3	3405.771	876.648	0.000
Within groups	31.080	8	3.885		
Total	10248.39	11			

Table D22. Multiple comparisons on the percent hemolysis at various concentration of oxyresveratrol

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
4	3	7.963			
3	3		31.817		
2	3			48.380	
1	3				88.040
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = 0 µg/ml, 2 = 200 µg/ml, 3 = 400 µg/ml, 4 = 600 µg/ml

Table D23. One-way analysis of variance on the percent hemolysis at various concentration of Trolox®

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	22.785	3	7.595	3.750	0.060
Within groups	16.202	8	2.025		
Total	38.987	11			

Table D24. One-way analysis of variance on the percent hemolysis at various concentration of l-ascorbic acid

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	69.781	3	23.260	3.652	0.063
Within groups	50.947	8	6.368		
Total	120.728	11			

Table D25. One-way analysis of variance on the percent hemolysis at various concentration of EGCG

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	924.086	3	308.029	15.800	0.001
Within groups	155.967	8	19.496		
Total	1080.054	11			

Table D26. Multiple comparisons on the percent hemolysis at various concentration of EGCG

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05	
		1	2
4	3	67.703	
3	3		84.347
2	3		87.567
1	3		90.247
Sigs.		1.000	0.412

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = 0 µg/ml, 2 = 200 µg/ml, 3 = 400 µg/ml, 4 = 600 µg/ml

Table D27. One-way analysis of variance on the percent hemolysis at various concentration of pine bark extract

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	12110.73	3	4036.909	1643.609	0.000
Within groups	19.649	8	2.456		
Total	12130.38	11			

Table D28. Multiple comparisons on the percent hemolysis at various concentration of pine bark extract

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
4	3	5.667			
3	3		25.507		
2	3			39.280	
1	3				91.463
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1 = 0 µg/ml, 2 = 200 µg/ml, 3 = 400 µg/ml, 4 = 600 µg/ml

Table D29. One-way analysis of variance on the percent relative hemolysis at 200 g/ml of Puag-Haad, oxyresveratrol, EGCG and pine bark extract

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	4921.140	3	1640.380	152.477	0.000
Within groups	86.065	8	10.758		
Total	5007.206	11			

Table D30. Multiple comparisons on the percent relative hemolysis at 200 g/ml of Puag-Haad, oxyresveratrol, EGCG and pine bark extract

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05			
		1	2	3	4
4	3	42.943			
2	3		54.953		
1	3			70.933	
3	3				97.037
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1= Puag-Haad, 2 = oxyresveratrol, 3 = EGCG, 4 = pine bark extract

Table D31. One-way analysis of variance on the percent relative hemolysis at 400 g/ml of Puag-Haad, oxyresveratrol, EGCG and pine bark extract

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	9089.846	3	3029.949	1090.204	0.000
Within groups	22.234	8	2.779		
Total	9112.080	11			

Table D32. Multiple comparisons on the percent relative hemolysis at 400 g/ml of Puag-Haad, oxyresveratrol, EGCG and pine bark extract

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05		
		1	2	3
1	3	27.233		
4	3	27.890		
2	3		36.1433	
3	3			93.463
Sig.		0.961	1.000	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1= Puag-Haad, 2 = oxyresveratrol, 3 = EGCG, 4 = pine bark extract

Table D33. One-way analysis of variance on the percent relative hemolysis at 600 g/ml of Puag-Haad, oxyresveratrol, EGCG and pine bark extract

ANOVA

	Sum of squares	df	Mean square	F	Sig.
Between groups	9613.543	3	3204.514	110.473	0.000
Within groups	232.057	8	29.007		
Total	9845.600	11			

Table D34. Multiple comparisons on the percent relative hemolysis at 600 g/ml of Puag-Haad, oxyresveratrol, EGCG and pine bark extract

Tukey HSD[a]

Sample	N	Subset for alpha = 0.05	
		1	2
4	3	6.193	
2	3	9.047	
1	3	14.960	
3	3		75.0233
Sigs.		0.266	1.000

Means for groups in homogenous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Where; 1= Puag-Haad, 2 = oxyresveratrol, 3 = EGCG, 4 = pine bark extract

VITA

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