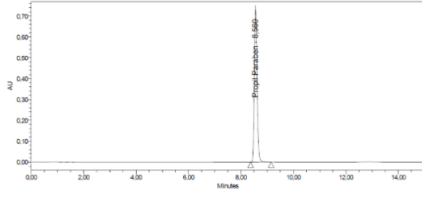


1 SUPPLEMENTARY DATA

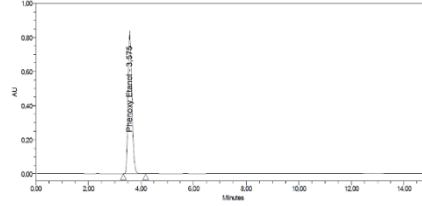
2 Supplementary 1. Chromatograms from the mobile phase system optimization.

3

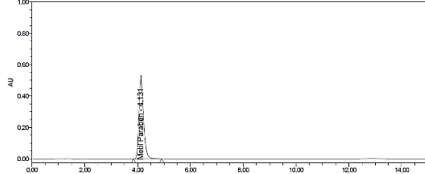
a. Standard of propylparaben



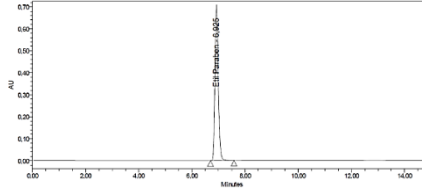
b. Standard of phenoxyethanol



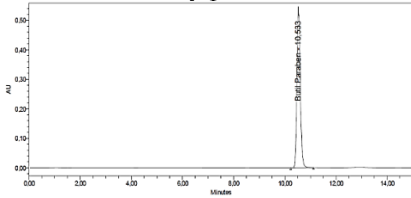
c. Standard of methylparaben



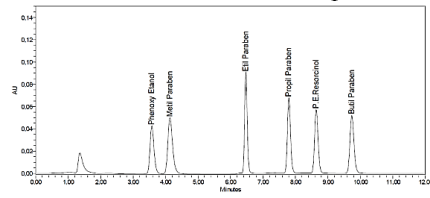
d. Standard of ethylparaben



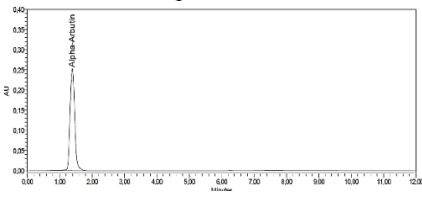
e. Standard of butylparaben



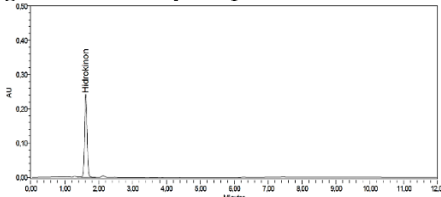
e. Mixed standard PR and five preservatives



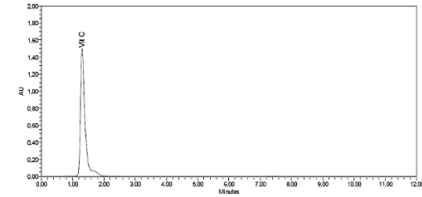
f. Standard of alpha-arbutin



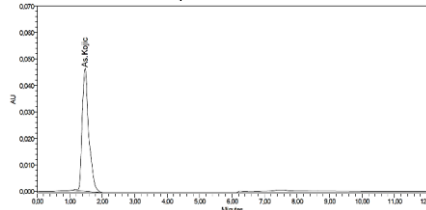
g. Standard of hydroquinone



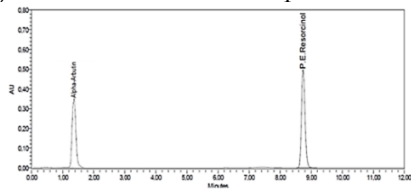
h. Standard of vitamin C



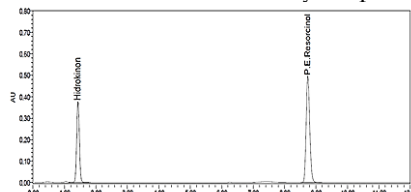
i. Standard of kojic acid



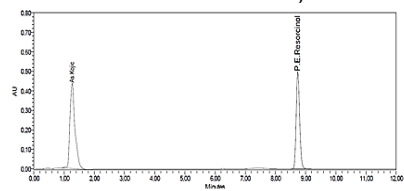
j. Mixed standard of PR+alpha arbutin



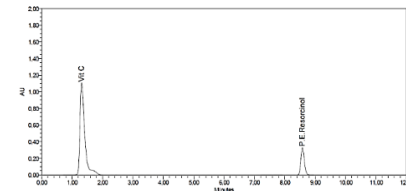
k. Mixed standard of PR+ hydroquinone



l. Mixed standard of PR+ kojic acid



m. Mixed standard PR+vitamin C



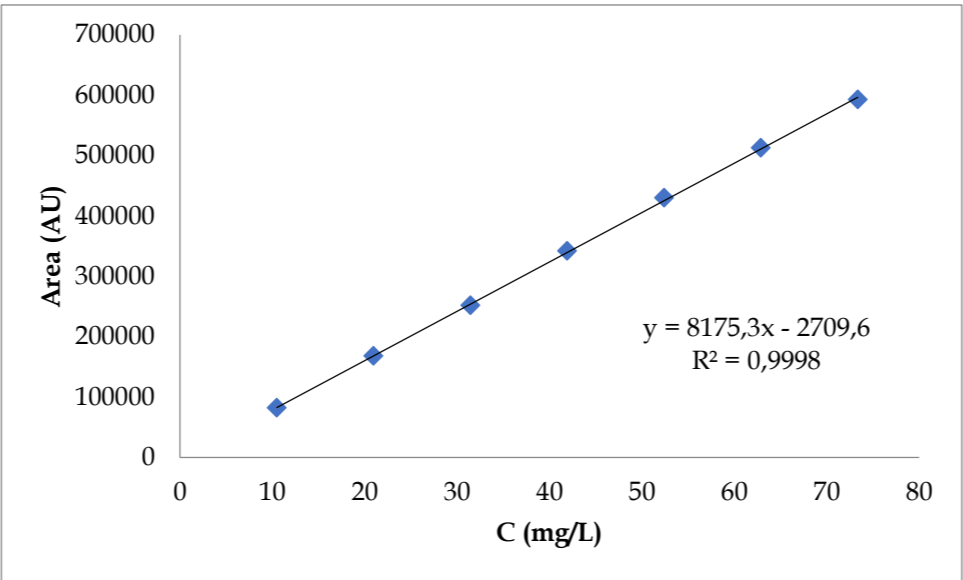
Supplementary 2.
 Linear Regression Phenyletyl
 Resorcinol and LOD/LOQ calculation

No.	Average of C (mg/L), Xi	AUC, Yi	Xi ²	Xi ³	Xi ⁴	Yi ²	XiYi	Xi ² Yi	\hat{y}	(yi- \hat{y}) ²	S _{y/x}	LOD (mg/L)	LOQ (mg/L)
1	10.48	82378.9	109.83	1151.02	12062.72	6786283165.2100	863330.8720	9047707.54	82967.5392857142	346496.2087	1957.42955271	0.7300	2.4300
2	20.96	168198.6	439.32	9208.18	193003.47	28290769041.9600	3525442.6560	73893278.07	168644.6928571430	198998.8372			
3	31.44	251821	988.47	31077.61	977080.06	63413816041.0000	7917252.2400	248918410.43	254321.8464285710	6254232.859			
4	41.92	341790.2	1757.29	73665.45	3088055.49	116820540816.0400	14327845.1840	600623270.11	339999.0000000000	3208397.44			
5	52.40	430099.1	2745.76	143877.82	7539197.98	184985235820.8100	22537192.8400	1180948904.82	425676.1535714290	19562455.11			
6	62.88	512899.5	3953.89	248620.88	15633280.93	263065897100.2500	32251120.5600	2027950460.81	511353.3071428570	2390712.351			
7	73.36	592805.7	5381.69	394800.75	28962582.95	351418597952.4900	43488226.1520	3190296270.51	597030.4607142860	17848603.09			
Jumlah	293.44	2379993.00	15376.26	902401.71	56405263.59	1014781139937.76	124910410.50	7331678302.29		49809895.9			
Simbol	SXi	SYi	SXi²	SXi³	SXi⁴	SYi²	SXiYi	SXi²Yi		S(yi-\hat{y})²			
		Y-bar											
		158666.2											

Linear Regression

Qxx	Qxy	Qyy	m	b	Sy	x-bar	Sx0	Vx0 (%)
9635.787093	78351400.78	6.37157E+11	8131.292236	-403.5595745	1975.817505	19.56266667	0.242989361	1.242107557

a	b	r
-2709.614286	8175.300913	0.9999



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13 *Supplementary 3*

14 a. Intraday Precision Data of Phenylethyl Resorcinol

No	AUC from the day -			Level (mg/mL)		
	1	2	3	1	2	3
1	408165	413554	412323	50.2580	50.9172	50.7666
2	421361	419855	418841	51.8722	51.6880	51.5639
3	411485	406054	403638	50.6641	49.9998	49.7043
4	408099	407245	407571	50.2500	50.1455	50.1854
5	402725	401564	398898	49.5926	49.4506	49.1245
6	410787	418359	415339	50.5788	51.5050	51.1356
Average	410437.0	411105.2	409435.0	50.5360	50.6177	50.4134
SD	6175.1	7302.4	7480.4	0.7553	0.8932	0.9150
(%) RSD ($\leq 2\%$)	1.5045	1.7763	1.8270	1.4946	1.7646	1.8150
RSD Horwitz	3.1174	3.1174	3.1174	3.1174	3.1174	3.1174
HORRAT ($\leq 2\%$)	0.4826	0.5698	0.5861	0.4795	0.5661	0.5822

15

16 b. Inter-day Precision data of Phenylethyl Resorcinol

Day	Area	Level (mg/L)
1	410437.0	50.5360
2	411105.2	50.6177
3	409435.0	50.4134
Average	410325.7	50.5224
SD	840.6	0.1028
(%) RSD ($\leq 2\%$)	0.2049	0.2035
RSD Horwitz	3.1174	3.1174
HORRAT ($\leq 2\%$)	0.0657	0.0653

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22 *Supplementary 4*

23 Robustness Test by Changing the λ_{\max}

Sample	AUC ($\lambda = 280$ nm)	AUC ($\lambda = 282$ nm)
1	413554	411874
2	419855	427808
3	406054	412647
4	407245	410516
5	401564	407387
6	418359	427081
7	421131	413377
Average	412537.4	415812.9
SD	7667.9	8179.0
t table		2,18
t calculated		1,00

24