Supporting Information

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Evaluation of Essential Oil Components in Genetically Modified Poaceae Plants: A Comparative Study of Their Whitening and Antioxidant Activities In Vitro

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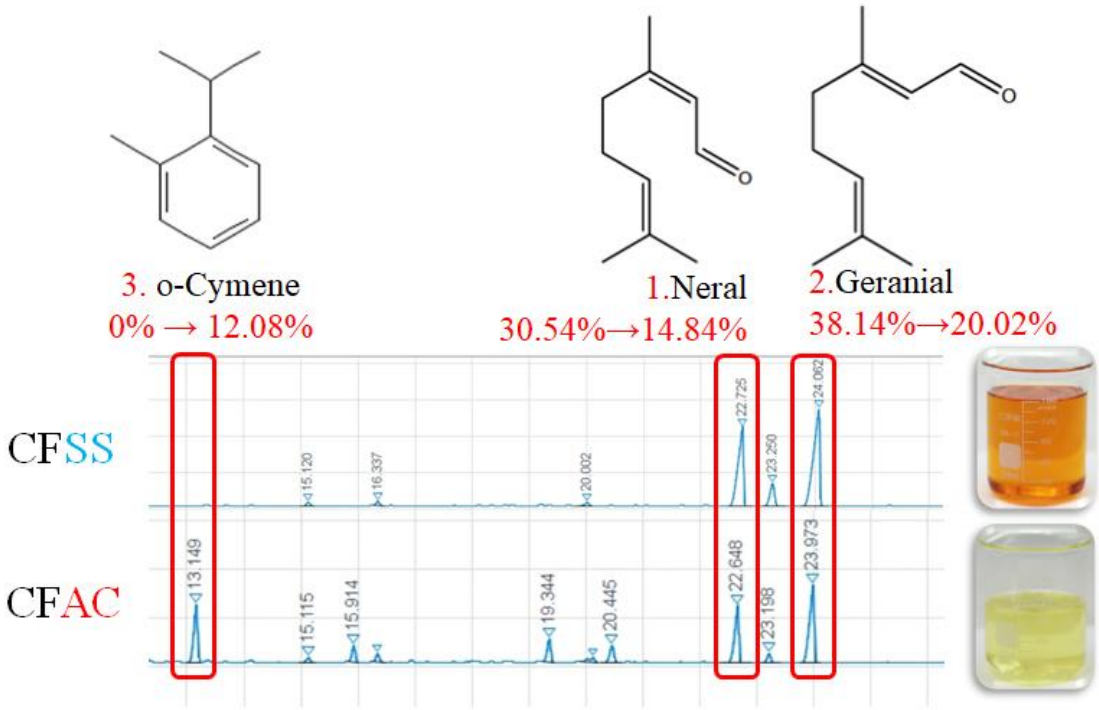

Figure S1: GC-FID chromatograms and images of CFSS and CMAC.

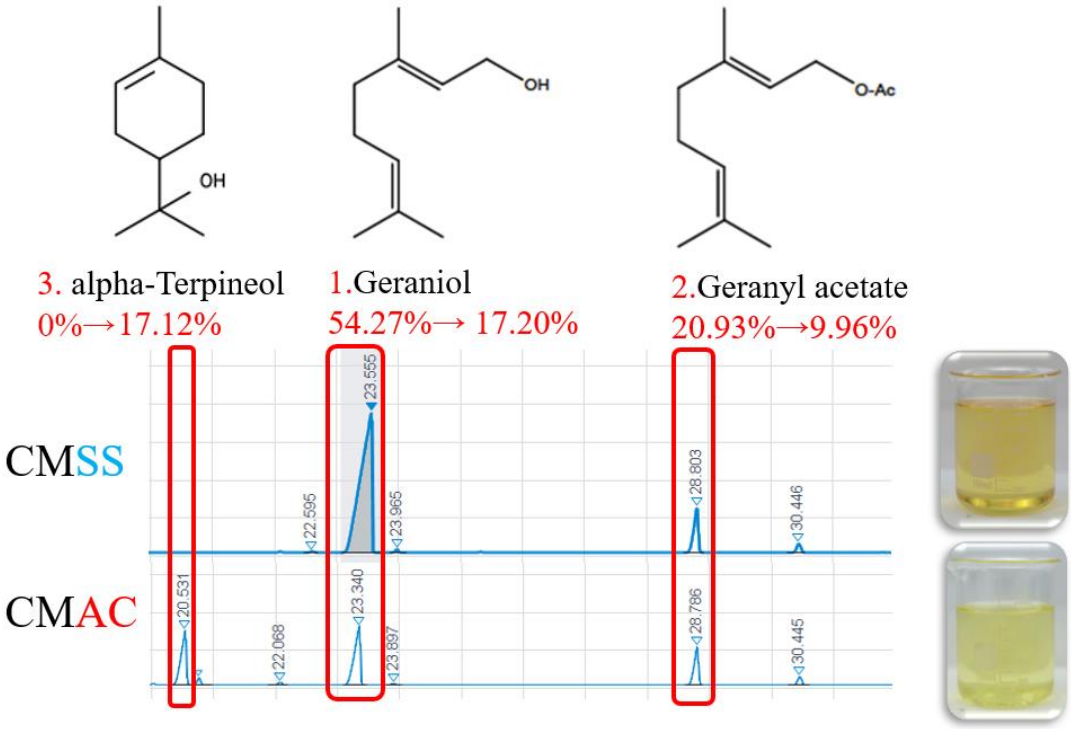

Figure S2: GC-FID chromatograms and images of CMSS and CMAC.

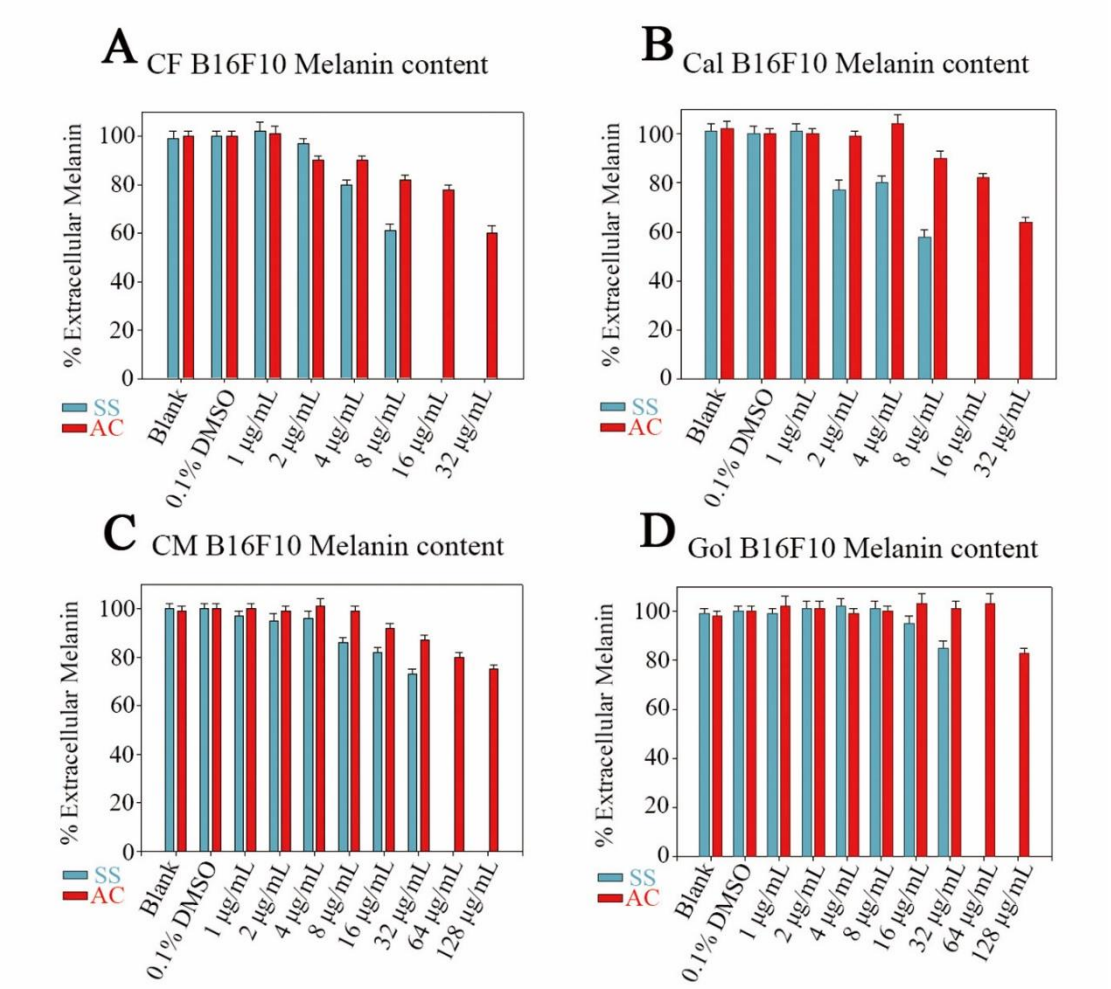

Figure S3: Influence of CFSS and CFAC (A), CalSS and CalAC (B), CMSS and CMAC (C), and GolSS and GolAC (D) on intracellular melanin content in B16-F10 cells after 24 hours of exposure (n = 3).

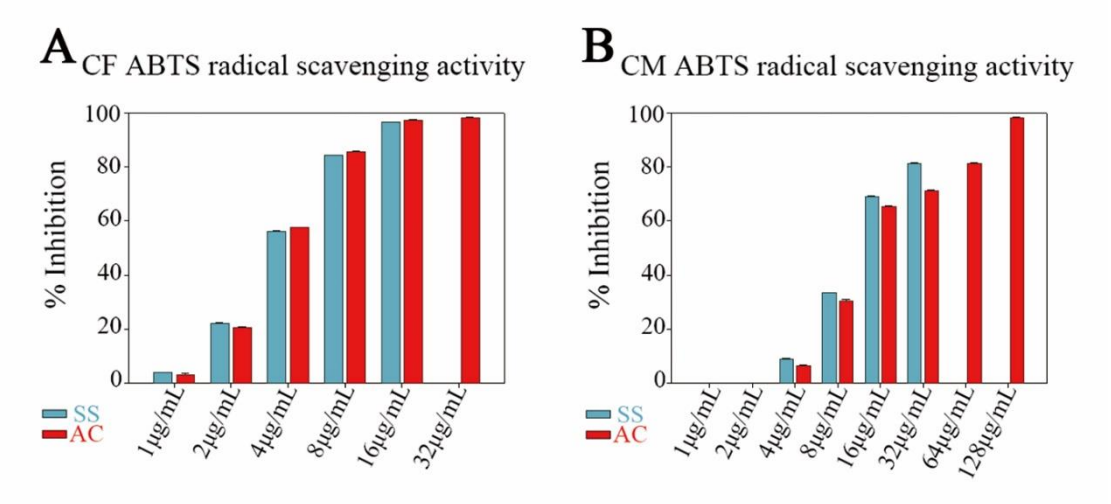

Figure S4: The ABTS radical scavenging assay was used to evaluate the free radical-scavenging abilities of CFSS and CFAC (A) and CMSS and CMAC (B). (n=3).

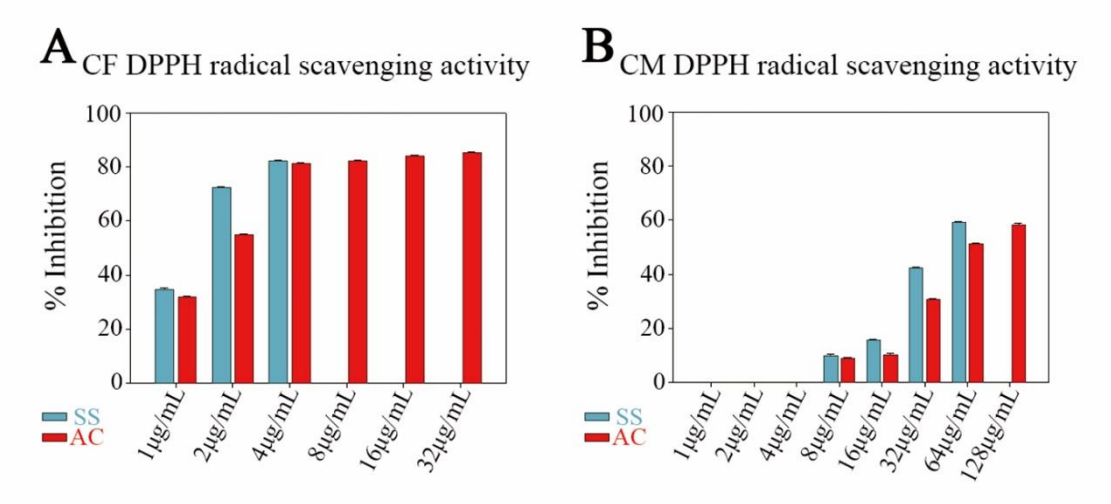

Figure S5: The DPPH radical scavenging assay was used to evaluate the free radical-scavenging abilities of CFSS and CFAC (A) and CMSS and CMAC (B). (n=3).

Table S1: GC-MS of CFSS, CFAC, CalSS and CalAC.

KI	Constituent	% Area				Method of Identification
		CFSS	CFAC	CalSS	CalAC	
954	Camphene	2.08	1.56			MS;KI;RC
975	Geranic oxide		0.86			MS;KI
986	Methyl heptenone	1.8	1.25			MS;KI
994	Dehydrocineole		0.81			MS;KI
1002	δ-2-Carene		0.71			MS;KI
1022	*o*-Cymene		12.08		15.56	MS;KI
1029	D-Limonene		0.81			MS;KI;RC
1037	β-Ocimene		0.65			MS;KI
1090	4-Nonanone	1.36	1.34			MS;KI;RC
1091	*p*-Cymene		5.56		8.67	MS;KI;RC
1096	Linalool	2.1	2.78			MS;KI
1110	1,3,8-*p*-Menthatriene		0.69		0.96	MS;KI
1113	6-Camphenol		0.79		1.02	MS;KI
1153	Citronellal		0.74			MS;KI;RC
1166	δ-Terpineol		8.31		10.76	MS;KI
1180	Isogeranial	1.21	1.4		2.06	MS;KI
1188	α-Terpineol		4.03		6.23	MS;KI;RC
1238	Neral	30.54	14.84	51.71	23.61	MS;KI;RC
1252	Geraniol	2.16	3.47			MS;KI;RC
1267	Geranial	38.14	20.02	48.29	26.97	MS;KI;RC
1381	Geranyl acetate	7.41	5.71			MS;KI
1408	(Z)-Caryophyllene	4.55	3.78			MS;KI
1451	(E)-Isoeugenol	1.52	0.82			MS;KI
1479	γ-Muurolene	4.47	3.02			MS;KI
1523	δ-Cadinene		1.33			MS;KI
1583	Caryophyllene oxide	1.41	0.65			MS;KI

Identification Methods: Mass Spectrum (MS), Kovats Index (KI), and Reference Compound (RC).

Table S2: Analog of CFSS

Type	Names	% Area
aldehyde	Isogeranial	1.21
aldehyde	Neral	30.54
aldehyde	Geranial	38.14
ester	Geranyl acetate	7.41
ketone	Methyl heptenone	1.8
ketone	4-Nonanone	1.36
monoterpene	Camphene	2.08
monoterpenol	Linalool	2.1
monoterpenol	Geraniol	2.16
other oxide	Caryophyllene oxide	1.41
phenol	(E)-Isoeugenol	1.52
sesquiterpene	(Z)-Caryophyllene	4.55
sesquiterpene	γ-Muurolene	4.47

Type	% Area
aldehyde	69.89
ester	7.41
ketone	3.16
monoterpene	2.08
monoterpenol	4.26
other oxide	1.41
phenol	1.52
sesquiterpene	9.02

Table S3: Analog of CFAC

Type	Names	% Area
aldehyde	Citronellal	0.74
aldehyde	Isogeranial	1.4
aldehyde	Neral	14.84
aldehyde	Geranial	20.02
ester	Geranyl acetate	5.71
ketone	Methyl heptenone	1.25
ketone	4-Nonanone	1.34
monoterpene	Camphene	1.56
monoterpene	δ-2-Carene	0.71
monoterpene	*o*-Cymene	12.08
monoterpene	D-Limonene	0.81
monoterpene	beta-Ocimene	0.65
monoterpene	*p*-Cymene	5.56
monoterpene	1,3,8-*p*-Menthatriene	0.69
monoterpene	6-Camphenol	0.79
monoterpenol	Linalool	2.78
monoterpenol	δ-Terpineol	8.31
monoterpenol	α-Terpineol	4.03
monoterpenol	Geraniol	3.47
other oxide	Geranic oxide	0.86
other oxide	Dehydrocineole	0.81
other oxide	Caryophyllene oxide	0.65
phenol	(E)-Isoeugenol	0.82
sesquiterpene	(Z)-Caryophyllene	3.78
sesquiterpene	γ-Muurolene	3.02
sesquiterpene	δ-Cadinene	1.33

Type	% Area
aldehyde	37
ester	5.71
ketone	2.59
monoterpene	22.85
monoterpenol	18.59
other oxide	2.32
phenol	0.82
sesquiterpene	8.13

Table S4: Analog of CalAC

Type	Names	% Area
aldehyde	Isogeranial	2.06
aldehyde	Neral	23.61
aldehyde	Geranial	26.97
monoterpene	*o*-Cymene	15.56
monoterpene	*p*-Cymene	8.67
monoterpene	1,3,8-*p*-Menthatriene	0.96
monoterpene	6-Camphenol	1.02
monoterpenol	δ-Terpineol	10.76
monoterpenol	α-Terpineol	6.23

Type	% Area
aldehyde	52.64
monoterpene	26.21
monoterpenol	16.99

Table S5: GC-MS of CMSS, CMAC, GolSS and GolAC.

KI	Constituent	% Area				Method of Identification
		CM SS	CM AC	Gol SS	Gol AC	
975	Geranic oxide		5.15		6.36	MS;KI
990	β-Myrcene		0.95		1.35	MS;KI;RC
1014	1,4-Cineole		0.67		1.17	MS;KI
1017	α-Terpinolene		0.83		1.2	MS;KI
1022	*o*-Cymene		0.54			MS;KI
1029	D-Limonene		2.14		3.38	MS;KI
1031	1,8-Cineole		0.88		1.41	MS;KI;RC
1037	(Z)-β-Ocimene		1.6		2.05	MS;KI
1045	Ocimen quintoxide		1.64		3.01	MS;KI
1050	(E)-β-Ocimene	3.54	3.25			MS;KI
1054	γ-Terpinene				0.76	MS;KI
1088	Terpinolene		3.17		5.54	MS;KI;RC
1096	Linalool	6.16	13.5		14.16	MS;KI;RC
1122	Myrcenol		1.56		2.47	MS;KI
1133	1-Terpineol		0.7		1.22	MS;KI
1163	cis-β-Terpineol		1.3		2.07	MS;KI
1165	trans-Ocimenol		2.99		4.77	MS;KI
1168	cis-Ocimenol		4.69		6.79	MS;KI
1177	Terpinen-4-ol		0.6			MS;KI;RC
1184	α-Cyclogeraniol		1.49		2.27	MS;KI
1188	α-Terpineol		17.12		22.14	MS;KI;RC
1199	γ-Terpineol		2.16		3.33	MS;KI
1229	Nerol		0.89	4.91	1.19	MS;KI;RC
1252	Geraniol	54.27	17.2	95.09	13.32	MS;KI;RC
1267	Geranial	2.15				MS;KI;RC
1381	Geranyl acetate	20.93	9.96			MS;KI;RC
1408	(Z)-Caryophyllene	5.92	3			MS;KI
1723	(2Z,6E)-Farnesol	3.61	0.68			MS;KI

Table S6: Analog of CMSS

Type	Constituent	% Area
monoterpene	(E)-β-Ocimene	3.54
monoterpenol	Linalool	6.16
monoterpenol	Geraniol	54.27
aldehyde	Geranial	2.15
ester	Geranyl acetate	20.93
sesquiterpene	(Z)-Caryophyllene	5.92
sesquiterpenol	(2Z,6E)-Farnesol	3.61

Type	% Area
aldehyde	2.15
ester	20.93
monoterpene	3.54
monoterpenol	60.43
sesquiterpene	5.92
sesquiterpenol	3.61

Table S7 : Analog of CMAC

Type	Constituent	% Area
ester	Geranyl acetate	9.96
monoterpene	beta-Myrcene	0.95
monoterpene	alpha-Terpinolene	0.83
monoterpene	*o*-Cymene	0.54
monoterpene	D-Limonene	2.14
monoterpene	(E)-beta-Ocimene	1.6
monoterpene	(E)-β-Ocimene	3.25
monoterpene	Terpinolene	3.17
monoterpenol	Linalool	13.5
monoterpenol	Myrcenol	1.56
monoterpenol	1-Terpineol	0.7
monoterpenol	cis-β-Terpineol	1.3
monoterpenol	trans-Ocimenol	2.99
monoterpenol	cis-Ocimenol	4.69
monoterpenol	Terpinen-4-ol	0.6
monoterpenol	alpha-Cyclogeraniol	1.49
monoterpenol	α-Terpineol	17.12
monoterpenol	gamma-Terpineol	2.16
monoterpenol	Nerol	0.89
monoterpenol	Geraniol	17.2
other oxide	Geranic oxide	5.15
other oxide	1,4-Cineole	0.67
other oxide	1,8-Cineole	0.88
other oxide	Ocimen quintoxide	1.64
sesquiterpene	(Z)-Caryophyllene	3
sesquiterpenol	(2Z,6E)-Farnesol	0.68

Type	% Area
ester	9.96
monoterpene	12.48
monoterpenol	64.2
other oxide	8.34
sesquiterpene	3
sesquiterpenol	0.68

Table S8: Analog of GolAC

Type	Constituent	% Area
other oxide	Geranic oxide	6.36
monoterpene	beta-Myrcene	1.35
monoterpene	alpha-Terpinolene	1.2
monoterpene	D-Limonene	3.38
monoterpene	(E)-beta-Ocimene	2.05
monoterpene	gamma-Terpinene	0.76
monoterpene	Terpinolene	5.54
monoterpenol	Linalool	14.16
monoterpenol	Myrcenol	2.47
monoterpenol	1-Terpineol	1.22
monoterpenol	cis-β-Terpineol	2.07
monoterpenol	trans-Ocimenol	4.77
monoterpenol	cis-Ocimenol	6.79
monoterpenol	alpha-Cyclogeraniol	2.27
monoterpenol	α-Terpineol	22.14
monoterpenol	gamma-Terpineol	3.33
monoterpenol	Nerol	1.19
monoterpenol	Geraniol	13.32
other oxide	1,4-Cineole	1.17
other oxide	1,8-Cineole	1.41
other oxide	Ocimen quintoxide	3.01

Type	% Area
monoterpene	14.28
monoterpenol	73.73
other oxide	11.95

Table S9: Cell viability of B16-F10 exposes to different concentration of CFSS for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	0.955	0.991	1.025	0.99	0.02
1%DMSO	1	1	1	1	0.02
1μg/mL	0.981	0.996	0.861	0.946	0.04
2μg/mL	0.994	0.942	0.989	0.975	0.02
4μg/mL	0.932	0.978	0.988	0.966	0.02
8μg/mL	0.788	0.831	0.776	0.798	0.02
16μg/mL	0.372	0.378	0.423	0.391	0.02
32μg/mL	0.187	0.152	0.235	0.191	0.02
64μg/mL	0.132	0.121	0.076	0.11	0.02
128μg/mL	0.016	0.064	0.022	0.034	0.02

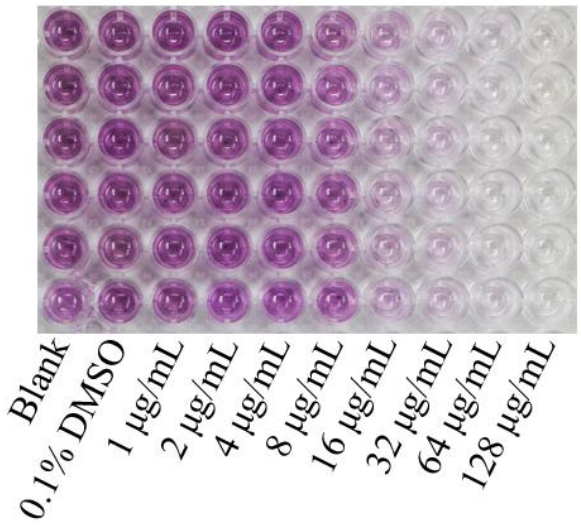

Figure S7: MTT photo of CFSS

Table S10: Cell viability of B16-F10 exposes to different concentration of CFAC for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	0.998	1.027	0.933	0.986	0.03
1%DMSO	1	1	1	1	0.02
1μg/mL	0.951	0.942	1.041	0.978	0.03
2μg/mL	1.052	0.972	0.959	0.994	0.03
4μg/mL	1.036	0.953	1.026	1.005	0.03
8μg/mL	0.937	0.932	1.032	0.967	0.03
16μg/mL	0.942	0.944	1.044	0.977	0.02
32μg/mL	0.891	0.947	0.962	0.933	0.02
64μg/mL	0.706	0.654	0.692	0.684	0.02
128μg/mL	0.352	0.361	0.418	0.377	0.02

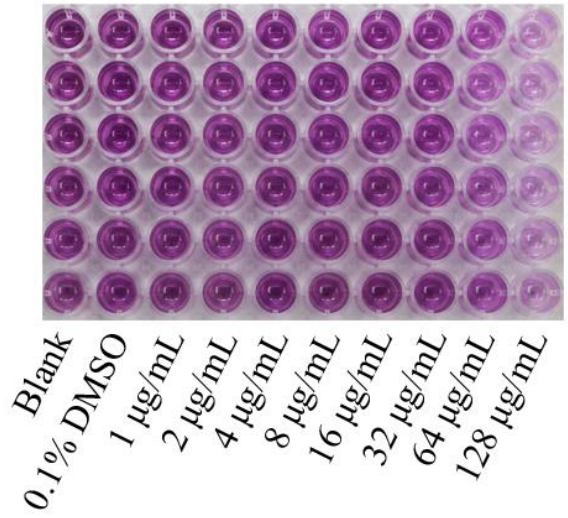

Figure S8: MTT photo of CFAC

Table S11: Cell viability of B16-F10 exposes to different concentration of CalSS for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	1.09	0.983	0.992	1.022	0.03
1%DMSO	1	1	1	1	0.02
1µg/mL	0.992	0.951	0.912	0.952	0.02
2µg/mL	0.981	0.943	0.921	0.948	0.02
4µg/mL	0.931	0.876	0.905	0.904	0.02
8µg/mL	0.641	0.585	0.571	0.599	0.02
16µg/mL	0.283	0.24	0.218	0.247	0.02
32µg/mL	0.162	0.09	0.095	0.116	0.02
64µg/mL	0.067	0.021	0.011	0.033	0.02
128µg/mL	0.058	0.011	0.012	0.027	0.02

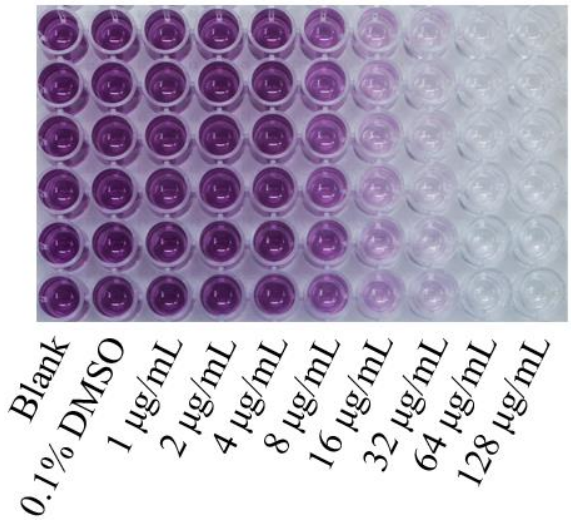

Figure S9: MTT photp of CalSS

Table S12: Cell viability of B16-F10 exposes to different concentration of CalAC for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	1.002	1.073	0.982	1.019	0.03
1%DMSO	1	1	1	1	0.02
1µg/mL	0.951	1.008	0.954	0.971	0.02
2µg/mL	0.922	0.931	0.858	0.904	0.02
4µg/mL	0.921	0.936	0.873	0.91	0.02
8µg/mL	0.921	0.928	0.852	0.9	0.02
16µg/mL	0.915	0.918	0.843	0.892	0.02
32µg/mL	0.601	0.551	0.541	0.564	0.02
64µg/mL	0.326	0.281	0.279	0.295	0.02
128µg/mL	0.159	0.115	0.108	0.127	0.02

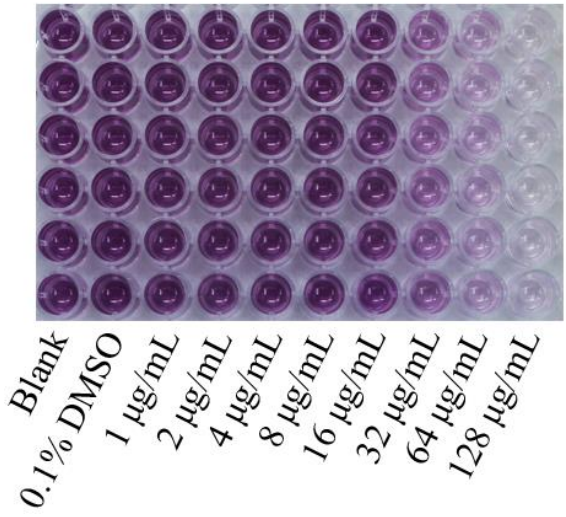

Figure S10: MTT photp of CalAC

Table S13: Cell viability of B16-F10 exposes to different concentration of CMSS for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	1.029	0.986	0.981	0.999	0.02
1%DMSO	1	1	1	1	0.02
1µg/mL	0.998	1.03	0.976	1.001	0.02
2µg/mL	1	1.032	0.978	1.003	0.02
4µg/mL	0.991	1.021	0.964	0.992	0.02
8µg/mL	0.989	0.992	1.068	1.016	0.03
16µg/mL	0.985	1.024	0.973	0.994	0.02
32µg/mL	0.956	0.915	0.894	0.922	0.02
64µg/mL	0.742	0.715	0.681	0.713	0.02
128µg/mL	0.561	0.621	0.541	0.574	0.02

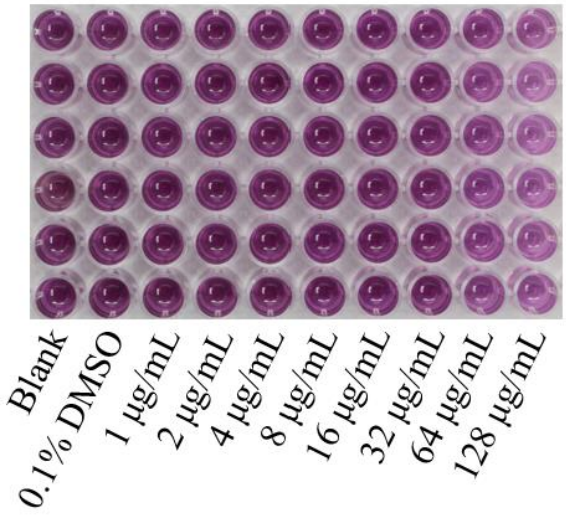

Figure S11: MTT photp of CMSS

Table S14: Cell viability of B16-F10 exposes to different concentration of CMAC for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	1.043	0.984	0.99	1.006	0.02
1%DMSO	1	1	1	1	0.02
1µg/mL	1.031	0.989	1.109	1.043	0.04
2µg/mL	1.032	0.992	0.981	1.002	0.02
4µg/mL	1.021	0.968	0.962	0.984	0.02
8µg/mL	1.008	0.959	0.948	0.972	0.02
16µg/mL	0.973	0.931	0.923	0.942	0.02
32µg/mL	0.967	0.917	0.885	0.923	0.02
64µg/mL	0.954	0.887	0.876	0.906	0.02
128µg/mL	0.942	0.889	0.868	0.9	0.02

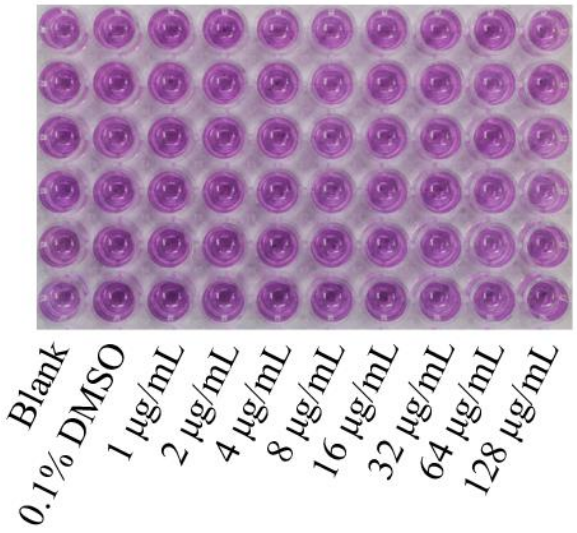

Figure S12: MTT photp of CMAC

Table S15: Cell viability of B16-F10 exposes to different concentration of GolSS for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	0.992	1.082	0.994	1.023	0.03
1%DMSO	1	1	1	1	0.03
1µg/mL	0.973	0.981	1.029	0.994	0.02
2µg/mL	0.974	0.984	1.025	0.994	0.02
4µg/mL	0.942	0.929	1.021	0.964	0.03
8µg/mL	0.922	0.921	0.972	0.938	0.02
16µg/mL	0.998	0.92	0.932	0.95	0.02
32µg/mL	0.884	0.881	0.971	0.912	0.03
64µg/mL	0.942	0.843	0.821	0.869	0.04
128µg/mL	0.871	0.831	0.821	0.841	0.02

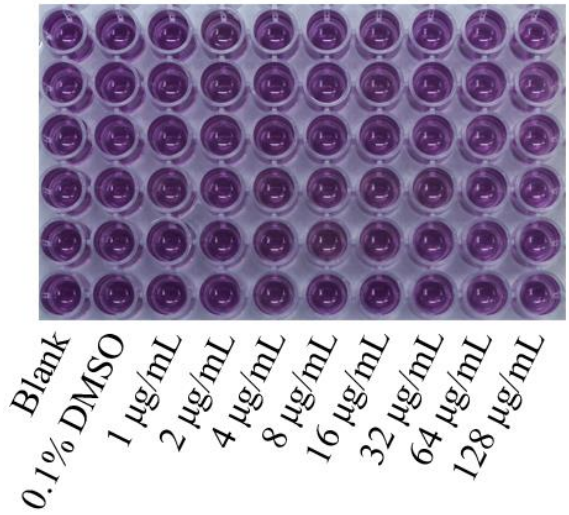

Figure S13: MTT photp of GolSS

Table S16: Cell viability of B16-F10 exposes to different concentration of GolAC for 24h(n=3)

Concentration	Cell viability (100%)			Mean	SE
	1	2	3		
Blank	1.068	0.993	0.973	1.011	0.03
1%DMSO	1	1	1	1	0.03
1µg/mL	0.989	0.987	1.055	1.01	0.02
2µg/mL	0.984	0.981	0.932	0.966	0.02
4µg/mL	0.972	1.048	0.958	0.993	0.03
8µg/mL	0.968	1.021	0.942	0.977	0.02
16µg/mL	0.972	0.944	1.021	0.979	0.02
32µg/mL	0.97	0.956	1.052	0.993	0.03
64µg/mL	0.941	0.921	1.052	0.971	0.04
128µg/mL	0.894	0.882	0.932	0.903	0.02

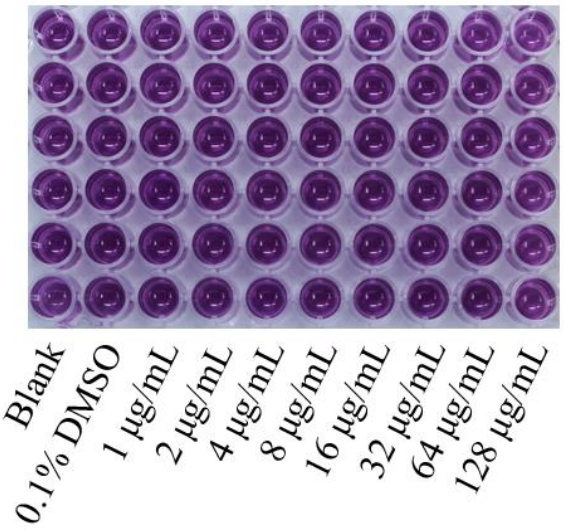

Figure S14: MTT photp of GolAC

Table S17: Melanin content of B16-F10 exposes to different concentration of CFSS for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	1.046	0.976	0.952	0.991	0.03
1%DMSO	1	1	1	1	0.02
1µg/mL	1.096	0.973	0.992	1.02	0.04
2µg/mL	0.946	0.996	0.956	0.966	0.02
4µg/mL	0.831	0.798	0.774	0.801	0.02
8µg/mL	0.627	0.631	0.548	0.602	0.03

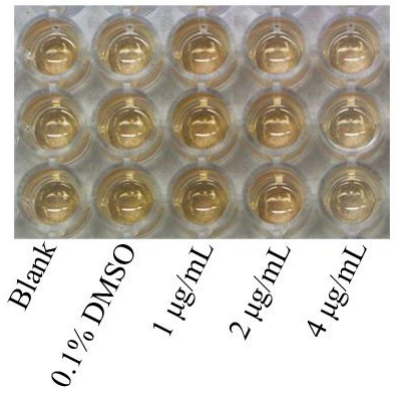

Figure S15: Melanin photo of CFSS

Table S18: Melanin content of B16-F10 exposes to different concentration of CFAC for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	1.022	1.011	0.969	1.001	0.02
1%DMSO	1	1	1	1	0.02
1µg/mL	1.052	1.021	0.962	1.012	0.03
2µg/mL	0.873	0.941	0.886	0.9	0.02
4µg/mL	0.873	0.938	0.891	0.901	0.02
8µg/mL	0.862	0.792	0.813	0.822	0.02
16µg/mL	0.762	0.821	0.751	0.778	0.02
32µg/mL	0.632	0.613	0.542	0.596	0.03

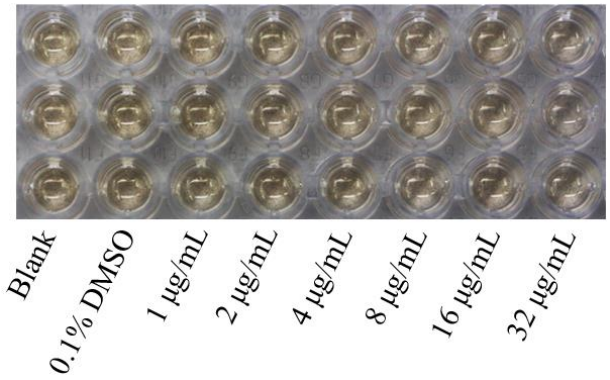

Figure S16: Melanin photo of CFAC

Table S19: Melanin content of B16-F10 exposes to different concentration of CalSS for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	1.029	1.052	0.954	1.012	0.03
1%DMSO	1	1	1	1	0.03
1µg/mL	1.28	1.052	0.961	1.014	0.03
2µg/mL	0.758	0.721	0.841	0.773	0.04
4µg/mL	0.798	0.752	0.851	0.8	0.03
8µg/mL	0.532	0.646	0.562	0.58	0.03

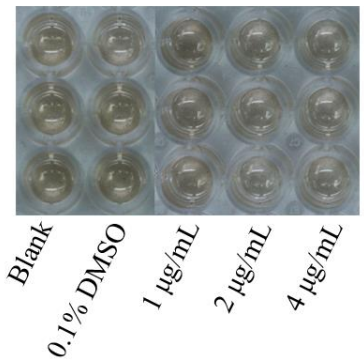

Figure S17: Melanin photo of CalSS

Table S20: Melanin content of B16-F10 exposes to different concentration of CalAC for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	1.072	0.992	0.983	1.016	0.03
1%DMSO	1	1	1	1	0.02
1µg/mL	1.039	0.978	0.979	0.999	0.02
2µg/mL	1.028	0.971	0.974	0.991	0.02
4µg/mL	1.13	0.979	1.021	1.043	0.04
8µg/mL	0.968	0.883	0.852	0.901	0.03
16µg/mL	0.861	0.789	0.797	0.816	0.02
32µg/mL	0.691	0.622	0.612	0.642	0.02

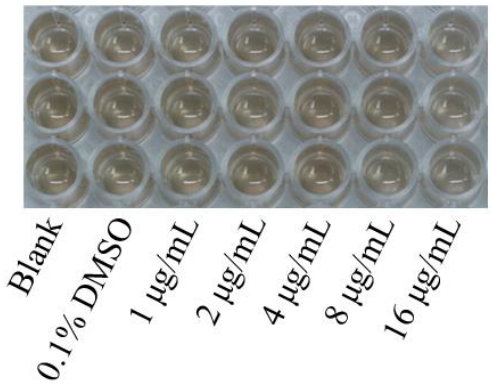

Figure S18: Melanin photo of CalAC

Table S21: Melanin content of B16-F10 exposes to different concentration of CMSS for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	1.026	1.031	0.954	1.004	0.02
1%DMSO	1	1	1	1	0.02
1µg/mL	0.982	0.992	0.932	0.969	0.02
2µg/mL	0.978	0.971	0.889	0.946	0.03
4µg/mL	0.983	0.981	0.904	0.956	0.03
8µg/mL	0.892	0.821	0.873	0.862	0.02
16µg/mL	0.813	0.798	0.851	0.821	0.02
32µg/mL	0.732	0.764	0.692	0.729	0.02

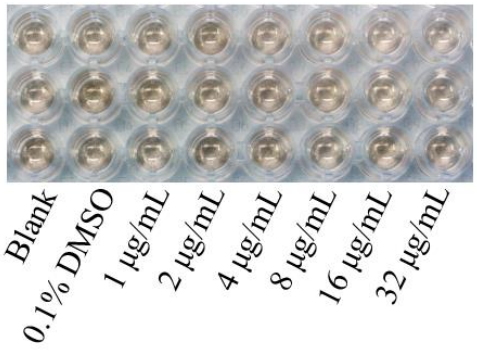

Figure S19: Melanin photo of CMSS

Table S22: Melanin content of B16-F10 exposes to different concentration of CMAC for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	1.024	0.991	0.965	0.993	0.02
1%DMSO	1	1	1	1	0.02
1µg/mL	0.986	1.052	0.973	1.004	0.02
2µg/mL	1.019	0.998	0.964	0.994	0.02
4µg/mL	1.032	1.028	0.954	1.005	0.03
8µg/mL	0.984	1.019	0.962	0.988	0.02
16µg/mL	0.926	0.94	0.886	0.917	0.02
32µg/mL	0.891	0.882	0.821	0.865	0.02
64µg/mL	0.821	0.813	0.762	0.799	0.02
128µg/mL	0.771	0.775	0.712	0.753	0.02

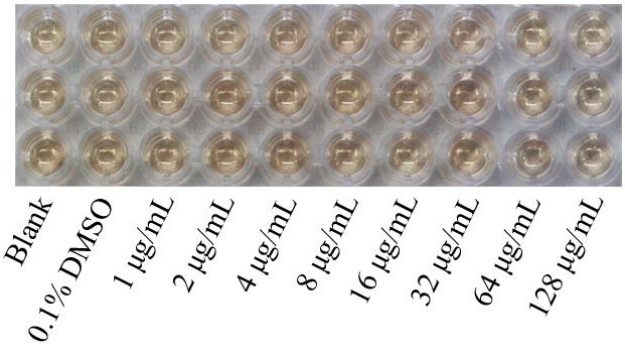

Figure S20: Melanin photo of CMAC

Table S23: Melanin content of B16-F10 exposes to different concentration of GolSS for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	1.031	0.985	0.981	0.999	0.02
1%DMSO	1	1	1	1	0.02
1µg/mL	1.032	0.979	0.983	0.998	0.02
2µg/mL	1.087	0.976	0.992	1.018	0.03
4µg/mL	1.082	0.981	0.984	1.016	0.03
8µg/mL	1.064	0.982	0.979	1.008	0.03
16µg/mL	1.011	0.914	0.923	0.949	0.03
32µg/mL	0.902	0.821	0.832	0.852	0.03

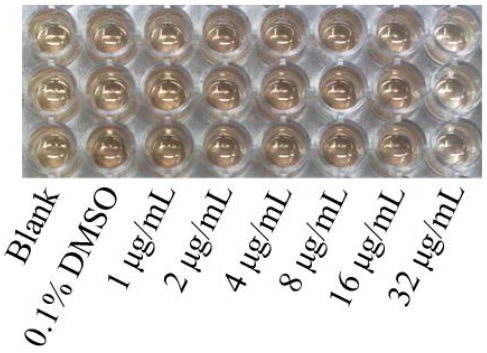

Figure S21: Melanin photo of GolSS

Table S24: Melanin content of B16-F10 exposes to different concentration of GolAC for 24h(n=3)

Concentration	Melanin content (100%)			Mean	SE
	1	2	3		
Blank	0.982	1.013	0.942	0.979	0.02
1%DMSO	1	1	1	1	0.02
1µg/mL	1.099	0.973	0.978	1.017	0.04
2µg/mL	1.072	0.978	0.969	1.006	0.03
4µg/mL	1.023	0.971	0.968	0.987	0.02
8µg/mL	1.043	0.992	0.965	1	0.02
16µg/mL	1.008	1.112	0.981	1.034	0.04
32µg/mL	0.992	1.071	0.973	1.012	0.03
64µg/mL	0.993	1.121	0.983	1.032	0.04
128µg/mL	0.862	0.803	0.812	0.826	0.02

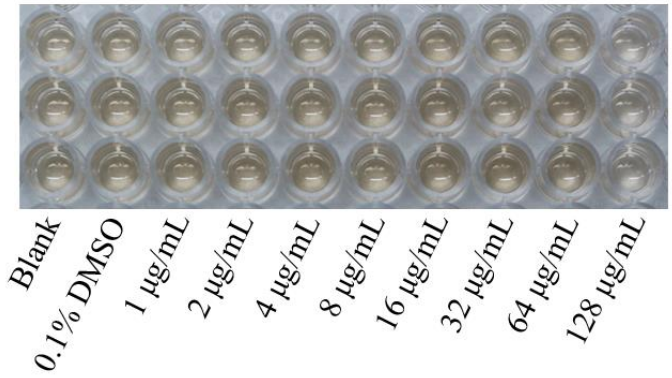

Figure S22: Melanin photo of GolAC

Table S25: Scavenging DPPH free radicals exposes to different concentration of CFSS (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
1µg/mL	34.568	34.556	34.548	34.557	0.006
2µg/mL	72.281	72.274	72.271	72.275	0.003
4µg/mL	82.14	82.141	82.152	82.144	0.004
8µg/mL	84.218	84.214	84.207	84.213	0.003
16µg/mL	85.216	85.232	85.221	85.223	0.005
32µg/mL	86.329	86.323	86.319	86.324	0.003
64µg/mL	92.225	92.218	92.228	92.224	0.003

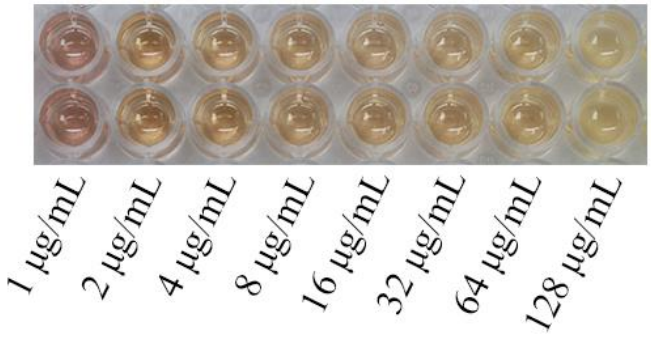

Figure S23: DPPH photo of CFSS

Table S26: Scavenging DPPH free radicals exposes to different concentration of CFAC (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
1µg/mL	32.014	32.022	32.023	32.02	0.003
2µg/mL	55.038	55.042	55.035	55.038	0.002
4µg/mL	81.223	81.217	81.226	81.222	0.003
8µg/mL	82.128	82.141	82.123	82.131	0.005
16µg/mL	84.132	84.125	84.13	84.129	0.002
32µg/mL	85.206	85.214	85.219	85.213	0.004
64µg/mL	92.135	92.143	92.148	92.142	0.004
128µg/mL	98.218	98.229	98.225	98.224	0.003

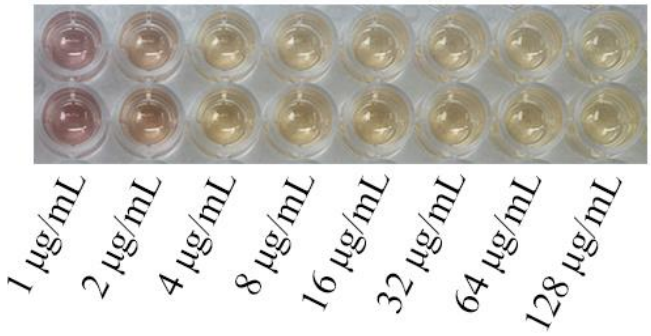

Figure S24: DPPH photo of CFAC

Table S27: Scavenging DPPH free radicals exposes to different concentration of CMSS (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
8µg/mL	9.799	9.815	9.816	9.81	0.006
16µg/mL	15.358	15.362	15.367	15.632	0.003
32µg/mL	42.248	42.235	42.238	42.24	0.004
64µg/mL	59.147	59.147	59.138	59.144	0.003
128µg/mL	68.266	68.276	68.262	68.268	0.004

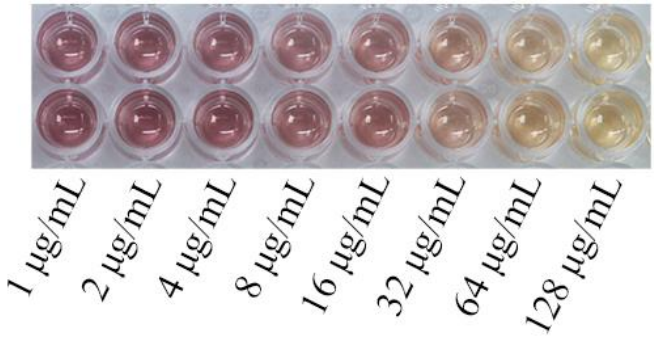

Figure S25: DPPH photo of CMSS

Table S28: Scavenging DPPH free radicals exposes to different concentration of CMAC (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
8µg/mL	8.921	8.915	8.924	8.92	0.003
16µg/mL	10.203	10.213	10.216	10.211	0.004
32µg/mL	30.726	30.714	30.721	30.72	0.003
64µg/mL	51.229	51.214	51.223	51.222	0.004
128µg/mL	58.431	58.417	58.419	58.422	0.004

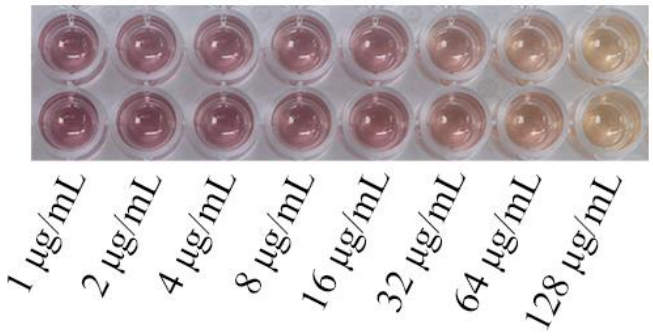

Figure S26: DPPH photo of CMAC

Table S29: Scavenging ABTS free radicals exposes to different concentration of CFSS (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
1µg/mL	3.846	3.836	3.844	3.842	0.003
2µg/mL	22.138	22.129	22.132	22.133	0.003
4µg/mL	56.172	56.181	56.168	56.174	0.004
8µg/mL	84.235	84.232	84.228	84.232	0.002
16µg/mL	96.455	96.458	96.447	96.453	0.003

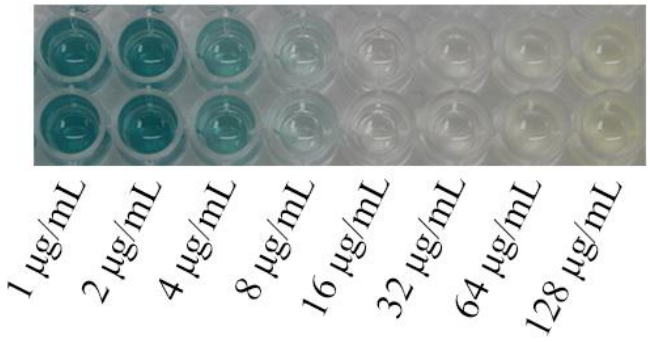

Figure S27: ABTS photo of CFSS

Table S30: Scavenging ABTS free radicals exposes to different concentration of CFAC (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
1µg/mL	3.229	3.216	3.224	3.223	0.004
2µg/mL	20.488	20.472	20.481	20.48	0.005
4µg/mL	57.604	57.598	57.599	57.6	0.002
8µg/mL	85.52	85.512	85.511	85.514	0.003
16µg/mL	97.135	97.127	97.138	97.133	0.003
32µg/mL	98.262	98.268	98.261	98.264	0.002

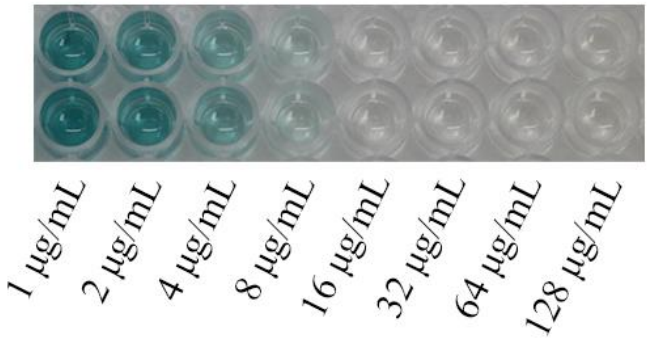

Figure S28: ABTS photo of CFAC

Table S31: Scavenging ABTS free radicals exposes to different concentration of CMSS (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
4µg/mL	8.966	8.962	8.959	8.962	0.002
8µg/mL	33.279	33.286	33.275	33.280	0.003
16µg/mL	69.124	69.125	69.118	69.122	0.002
32µg/mL	81.225	81.216	81.218	81.220	0.003

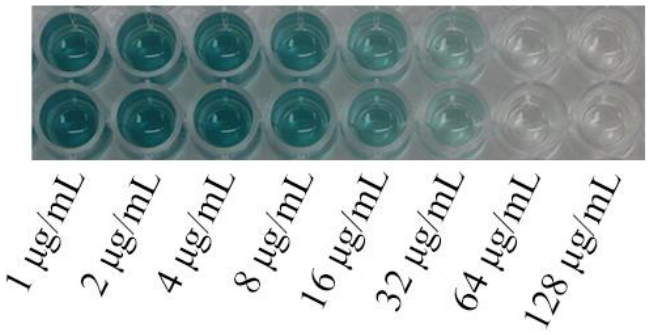

Figure S29: ABTS photo of CMSS

Table S32: Scavenging ABTS free radicals exposes to different concentration of CMAC (n=3)

Concentration	% Free Radical scavenging rate			Mean	SE
	1	2	3		
4µg/mL	6.553	6.548	6.542	6.548	0.003
8µg/mL	30.431	30.419	30.417	30.422	0.004
16µg/mL	65.316	65.312	65.307	65.312	0.003
32µg/mL	71.112	71.118	71.108	71.113	0.003
64µg/mL	81.317	81.324	81.313	81.318	0.003
128µg/mL	98.211	98.208	98.214	98.211	0.002

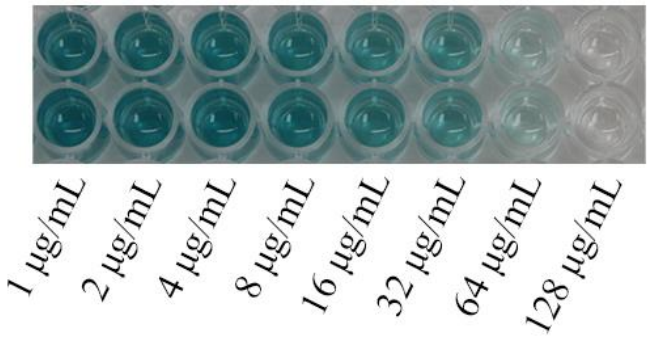

Figure S30: ABTS photo of CMAC