Supporting Information

Antioxidant Activity of Natural Allylpolyalkoxybenzene Plant Essential Oil Constituents

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Table S1. Allylpolyalkoxybenzenes as Major Components of Selected Essential Oils

compound	source of plant essential oil	content (%)	ref
estragole (**2**)	tarragon, *Artemisia dracunculus* L. (Asteraceae)	60–75	1
	tarragon, *A. dracunculus* L. (Asteraceae), aerial parts	57.1	2
	sweet basil, *Ocimum basilicum* L. (Lamiaceae), aerial parts	45.8	3
		69.19	4
safrole (**4**)	sassafras, *Sassafras albidum* (Nutt.) Nees (Lauraceae), root bark	85	5
	pimenta-longa, *Piper hispidinervum* C, DC; *P. callosum* Ruiz & Pav. (Piperaceae)	70–95	6
	hoja santa, *Piper auritum* Kunth. (Piperaceae), leaves	71.8	7
myristicin (**5**)	parsley, *Petroselinum sativum* Hoffm. (Apiaceae), Yugoslavian variety, leaves	60.5	8
	parsley, *P. sativum* Hoffm. (Apiaceae), myristicin varieties	55–75	9
	Piper arboreum Aubl. var. *arboreum* (Piperaceae)	70	6
allyltetramethoxy-benzene (**6**)	parsley, *P. sativum* Hoffm. (Apiaceae), allyltetramethoxybenzene varieties	52–57	9
apiol (**7**)	parsley, *P. sativum* Hoffm. (Apiaceae), apiol varieties	60–80	9
	parsley, *P. sativum* Hoffm. (Apiaceae), root variety, seeds	74.6	10
	Deverra tortuosa (Desf.) DC. (Apiaceae)		11
	flowers	69.38	
	stems	71.41	
	roots	65.73	
	Piper krukoffii Yunck. (Piperaceae)	80	6
dillapiol (**8**)	dill, *Anethum graveolens* L. (Apiaceae), Indian variety, seeds	33	10
	black caraway, *Carum nigrum* (Willd.) Baill. (Apiaceae), seeds	29.9	12
	black caraway, *Carum bulbocastanum* (L.) Koch (Apiaceae), fruits	44.6	13
	striped hemlock *Molopospermum peloponnesiacum* W.D.J. Koch (Apiaceae), roots	66.7	14
	striped hemlock, *M. peloponnesiacum* W.D.J. Koch (Apiaceae), stem	60.1	15
	pimento-de-macaco, *Piper aduncum* L. (Piperaceae)	31–97	6

Table S2. Content of Nothoapiol (9) in Plant EOs

family	species	content (%)	ref
Apiaceae	*Carum montanum* (Coss. et Durieu) Benth. et Hook.f. ex Arcang, aerial parts	NA[a]	16
	aerial parts	62.8	17
	roots	78	
	striped hemlock, *M. peloponnesiacum* W.D.J. Koch, fruits	54.8	14
	Nothosmyrnium japonicum Miq., fruits	18	18
	Pimpinella serbica (Vis.) Benth. & Hook.f. ex Drude, seeds	9.5	19
	black caraway, *Carum bulbocastanum* (L.) Koch, fruits	8.3	13
	black caraway, *Carum nigrum* (Willd.) Baill., seeds	5.8	12
	Peucedanum pauciradiatum Tamamsch., roots	NA[a]	20
Lamiaceae	beefsteak plant, *Perilla frutescens* (L.) Britton, leaves	13.5	21
Dictyotaceae	brown alga, *Spatoglossum variabile* Figari & De Notaris	> 1	22

Table S3. Effect of Allylpolyalkoxybenzenes on TBARS Accumulation in Mouse Brain Homogenate

compound	TBARS, nmol/mL[a]			
	entry 1		entry 2	
	0.1 mM	1 mM	0.1 mM	1 mM
blank[b]	27.52±0.60		8.70±0.31	
control (DMSO)	89.20±1.57		54.40±0.90	
1	86.37±0.18	78.72±0.86		
2	100.02±1.74	70.21±0.74		
4	86.46±0.74	33.84±0.43		
5	77.71±0.70	4.74±0.11		
6	84.90±0.52	68.36±1.83		
7	61.18±0.31	5.41±0.44	42.40±0.43	2.67±0.05
8	75.43±0.46	4.62±0.34	44.18±0.81	2.64±0.12
9			41.56±0.24	2.64±0.23
14			2.04±0.14	1.73±0.26
BHT	4.7±0.5			
trolox	3.6±0.2			

[a] TBARS concentration 1 h after the initiation of lipid peroxidation by Fe^{2+}/ascorbate. Data of two independent experiments (entry 1 and 2). The values are expressed as the mean ± SE from four independent experiments. [b] Intact sample without initiation of oxidation.

Table S4. Membrane-protective Properties of Allylpolyalkoxybenzenes (0.1 mM) in Mouse RBCs under H_2O_2-induced Oxidative Stress

compound	mouse RBC hemolysis, %					TBARS, nmol/mL[a]	metHb/oxyHb[b]	ferrylHb/oxyHb[c]
	1 h	2 h	3 h	4 h	5 h			
control	11.5±1.2	29.6±1.7	39.7±0.8	45.8±0.9	48.3±1.0	1.40±0.04	1.27±0.09	0.69±0.02
1	13.0±1.5	39.6±0.3	52.0±0.3	58.7±0.1	62.4±0.2	1.44±0.09	1.58±0.08	0.74±0.02
2	15.8±2.4	43.3±1.0	53.4±0.6	60.4±0.9	64.2±1.0	2.00±0.05	2.11±0,13	0.78±0.05
4	22.9±2.9	46.0±2.9	52.1±2.0	58.4±1.8	62.5±1.8	1.46±0.06	1.99±0.11	0.70±0.02
5	6.3±0.4	17.4±1.0	29.9±0.4	35.6±0.4	39.0±0.5	1.11±0.02	1.38±0.08	0.57±0.02
6	13.1±0.7	41.3±2.1	53.9±1.4	59.4±1.2	63.9±1.1	1.90±0.03	1.64±0.08	0.62±0.02
7	12.6±1.2	42.1±1.2	54.6±0.6	61.4±0.5	67.2±0.4	1.62±0.08	1.92±0.10	0.69±0.02
8	6.8±0.8	21.5±2.0	36.6±0.7	43.4±0.7	47.8±0.7	1.35±0.03	1.48±0.06	0.56±0.00

[a] TBARS concentration 4 h after adding H_2O_2 to the RBCs suspension. The values are expressed as the mean ± SE from 4–6 independent experiments. [b] The ratio of methemoglobin/oxyhemoglobin in RBCs after 5 h incubation. [c] The ratio of ferrylhemoglobin/oxyhemoglobin in RBCs after 5 h incubation.

Table S5. Membrane-protective Properties of Allylpolyalkoxybenzenes and BHT (0.01 mM) in Mouse RBCs under H_2O_2-induced Oxidative Stress

compound	mouse RBC hemolysis, %					TBARS,	metHb/oxyHb[b]	ferrylHb/oxyHb[c]
	1 h	2 h	3 h	4 h	5 h	nmol/mL[a]		
control	15.9±1.1	33.7±1.1	39.6±1.1	42.8±1.1	48.0±1.3	1.59±0.03	2.00±0.21	0.88±0.04
1	10.6±0.6	24.1±0.5	29.0±0.5	33.1±0.6	36.5±0.8	1.41±0.02	1.06±0.06	0.59±0.02
2	9.7±0.7	23.3±0.9	27.9±0.8	31.7±1.1	34.5±1.3	1.42±0.00	1.04±0.12	0.57±0.02
4	11.7±0.3	25.7±1.5	30.0±1.3	33.8±1.4	35.6±1.6	1.68±0.05	1.09±0.05	0.55±0.01
5	9.6±0.5	21.3±0.9	24.8±1.1	28.6±1.3	30.0±1.5	1.56±0.02	1.01±0.09	0.54±0.02
6	13.5±1.6	26.5±1.0	31.4±1.1	34.7±1.2	36.4±1.3	1.76±0.07	1.40±0.18	0.58±0.03
7	12.4±1.9	23.5±1.1	27.8±0.5	31.2±0.7	33.0±0.9	1.59±0.10	1.18±0.04	0.56±0.01
8	8.9±0.5	20.2±0.6	24.2±0.6	27.2±0.8	29.0±1.0	1.36±0.03	0.85±0.04	0.48±0.02
9	43.9±1.7	66.6±1.5	72.6±1.7	78.0±1.9	81.3±2.1	2.57±0.15	ND[d]	ND[d]
14	3.1±0.2	10.0±3.1	14.6±1.9	19.4±3.2	31.6±0.9	0.92±0.03	ND[d]	ND[d]
BHT	3.5±0.4	6.0±0.4	7.2±0.5	7.8±0.4	8.5±0.8	0.72±0.07	0.83±0.01	0.34±0.01

[a] TBARS concentration 4 h after adding H_2O_2 to the RBCs suspension. The values are expressed as the mean ± SE from 4–10 independent experiments. [b] The ratio of methemoglobin/oxyhemoglobin in RBCs after 5 h incubation. [c] The ratio of ferrylhemoglobin/oxyhemoglobin in RBCs after 5 h incubation. [d] ND: not determined.

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