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Supplemental Information

The Role of Dietary Phenolic Compounds in Protein Digestion and Processing Technologies to Improve their Anti-nutritive Properties

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Table S1. Overview of the studies investigating interactions of phenolic compounds with bovine serum albumin (BSA).

Phenolic compound	Type	Methodology	Conditions	Binding constant (Ka/M ⁻¹)	Binding site number	Digestibility	Reference
Flavone	Flavone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:5	1.95×10 ⁴ , 310.15 K	0.95	nd	Xiao and others 2010
Flavone	Flavone	BSA fluorescence quenching	pH 7.4	6.17×10 ⁴ , 300.15 K	1.03	nd	Shi and Cao 2011

7-Hydroxyflavone	Flavone	BSA fluorescence quenching	pH 7.4	1.26×10^6 , 300.15 K	1.25	nd	Shi and Cao 2011
7-Hydroxyflavone	Flavone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:5	1.48×10^7 , 310.15 K	1.40	nd	Xiao and others 2010
3,6-dihydroxy flavone	Flavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:1	1.12×10^3 , RT	0.6	nd	Awasthi and others 2014
Chrysin	Flavone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:5	1.20×10^6 , 310.15 K	1.17	nd	Xiao and others 2010
Chrysin	Flavone	BSA fluorescence quenching	pH 7.4	6.61×10^4 , 300.15 K	0.98	nd	Shi and Cao 2011
Baicalein	Flavone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:6	6.46×10^4 , 299 K	1.18	nd	Roy and others 2016
Baicalein	Flavone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:5	4.67×10^5 , 310.15 K	1.08	nd	Xiao and others 2010
Baicalein	Flavone	BSA fluorescence quenching	pH 7.4	3.89×10^5 , 300.15 K	1.1	nd	Shi and Cao 2011
Baicalein	Flavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	6.62×10^7 , 310 K	1.33	nd	Xiao and others 2009
Baicalin glycoside	Flavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:25	1.67×10^6 , 295 K	1.33	nd	Xiao and others 2007a
Baicalin glycoside	Flavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	1.63×10^6 , 310 K	1.17	nd	Xiao and others 2009
Baicalin glycoside	Flavone	BSA fluorescence quenching	pH 7.4	7.41×10^4 , 300.15 K	1.02	nd	Shi and Cao 2011
Apigenin	Flavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:1.2	5.32×10^4 , 291 K	0.90	nd	Bi and others 2012
Apigenin	Flavone	BSA fluorescence quenching	pH 7.4	4.90×10^5 , 300.15 K	1.11	nd	Shi and Cao 2011

Luteolin	Flavone	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:10	1.43×10^5 , 298 K	0.81	nd	Dufour and Dangles 2005
Luteolin	Flavone	BSA fluorescence quenching	pH 7.4	4.47×10^5 , 300.15 K	1.11	nd	Shi and Cao 2011
Wogonin	Flavone	BSA fluorescence quenching	pH 7.4	2.75×10^5 , 300.15 K	1.09	nd	Shi and Cao 2011
Tangeretin	Flavone	BSA fluorescence quenching	pH 7.4	5.75×10^4 , 300.15 K	0.98	nd	Shi and Cao 2011
Nobiletin	Flavone	BSA fluorescence quenching	pH 7.4	5.89×10^4 , 300.15 K	0.97	nd	Shi and Cao 2011
Gossypin	Flavone glycoside	Equilibrium dialysis	pH 7.4	nd	nd	nd	Sagar and others 2008
Icariin	Flavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:5.18	3.60×10^4 , 298 K	0.95	nd	Liu and others 2014
Galangin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	1.89×10^5 , 310 K	nd	nd	Cao and others 2010
Galangin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	6.43×10^5 , 310.15 K	0.92	nd	Xiao and others 2008b
Galangin	Flavonol	BSA fluorescence quenching	pH 7.4	2.45×10^5 , 300.15 K	1.08	nd	Shi and Cao 2011
Kaempferide	Flavonol	BSA fluorescence quenching	pH 7.4	1.62×10^5 , 300.15 K	1.04	nd	Shi and Cao 2011
Kaempferol	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	5.08×10^6 , 310 K	nd	nd	Cao and others 2010
Kaempferol	Flavonol	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:10	1.19×10^4 , 298 K	1.32	nd	Dufour and Dangles 2005
Kaempferol	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	2.58×10^6 , 310.15 K	1.12	nd	Xiao and others 2008b

Kaempferol	Flavonol	BSA fluorescence quenching	pH 7.5	3.5×10^5 , 298 K	1.0	nd	Skrut and others 2012
Kaempferol	Flavonol	BSA fluorescence quenching	pH 7.4	2.24×10^6 , 300.15 K	1.22	nd	Shi and Cao 2011
Kaempferol-3-glucoside	Flavonol glycoside	BSA fluorescence quenching	pH 7.5	1.8×10^5 , 298 K	0.55	nd	Skrut and others 2012
Kaempferitrin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4	1.23×10^5 , 300.15 K	1.08	nd	Shi and Cao 2011
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	3.70×10^7 , 310 K	nd	nd	Cao and others 2010
Quercetin	Flavonol	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:1.72	1.03×10^5 , 298 K	0.95	nd	Dangles and others 1999
Quercetin	Flavonol	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:10	1.34×10^5 , 298 K	0.89	nd	Dufour and Dangles 2005
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	7.34×10^4 , 300 K	nd	nd	Fang and others 2011
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:15	1.02×10^5 , 298 K	0.82	nd	Liu and others 2010a
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	3.83×10^7 , 310 K	1.00	nd	Liu and others 2010b
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:5.3	4.94×10^5 , 298 K	0.97	nd	Liu and others 2014
Quercetin	Flavonol	NMR	normalized affinity index	2.02×10^5 , 298 K	nd	nd	Martini and others 2008
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:0.67	4.85×10^5 , 298 K	1.19	nd	Mishra and others 2005
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	3.65×10^7 , 310.15 K	1.29	nd	Xiao and others 2008b

Quercetin	Flavonol	BSA fluorescence quenching	pH 7.5	3.4×10^5 , 298 K	1.1	nd	Skrut and others 2012
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	3.65×10^7 , 310 K	1.29	nd	Xiao and others 2009
Quercetin	Flavonol	Stopped-flow spectrophotometry	pH 7.4	nd	nd	nd	Kitson 2004
Quercetin	Flavonol	BSA fluorescence quenching	pH 7.4	2.45×10^5 , 300.15 K	1.06	nd	Shi and Cao 2011
Quercetin-Cu(II) complex	Flavonol	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:1.925	4.926×10^4 , 299 K	1.23	nd	Roy and others 2012
Quercetin 3-O- β -D-glucopyranoside	Flavonol glycoside	NMR	normalized affinity index	9.96×10^3 , 298 K	nd	nd	Martini and others 2008
Isoquercetin	Flavonol glycoside	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:1.72	1.45×10^4 , 298 K	3.18	nd	Dangles and others 1999
Quercitrin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	6.47×10^3 , 310.15 K	0.81	nd	Xiao and others 2008b
Quercitrin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	6.47×10^3 , 310 K	0.81	nd	Xiao and others 2009
Isoquercitrin	Flavonol glycoside	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:10	1.29×10^4 , 298 K	1.43	nd	Dufour and Dangles 2005
Isoquercitrin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:5.18	4.66×10^4 , 298 K	0.92	nd	Liu and others 2014
Myricetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	2.15×10^8 , 310 K	nd	nd	Cao and others 2010
Myricetin	Flavonol	BSA fluorescence	pH 7.4, up to	1.84×10^8 , 310 K	1.00	nd	Liu and others

		quenching	BSA: ligand ratio 1:2				2010b
Myricetin	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	4.54×10^8 , 310.15 K	1.42	nd	Xiao and others 2008b
Myricetin	Flavonol	BSA fluorescence quenching	pH 7.4	3.72×10^5 , 300.15 K	1.14	nd	Shi and Cao 2011
Fisetin	Flavonol	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:7	1.35×10^3 , 299 K	1.06	nd	Roy and others 2013
Rutin	Flavonol glycoside	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:1.72	8.6×10^5 , 298 K	2.66	nd	Dangles and others 1999
Rutin	Flavonol glycoside	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:10	1.07×10^4 , 298 K	1.44	nd	Dufour and Dangles 2005
Rutin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:15	8.39×10^4 , 298 K	0.95	nd	Liu and others 2010a
Rutin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:40	4.47×10^5 , 310 K	1.19	nd	Xiao and others 2009
Rutin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:3.73	1.65×10^4 , 298 K	0.86	nd	Liu and others 2014
Rutin	Flavonol glycoside	BSA fluorescence quenching	pH 7.4	1.15×10^5 , 300.15 K	1.06	nd	Shi and Cao 2011
Morin hydrate	Flavonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:1	5.01×10^4 , RT,	0.77	nd	Awasthi and others 2014
Morin	Flavonol	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:10	7.75×10^4 , 298 K	1.01	nd	Roy and others 2014
Crassirhizom oside B	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:6	5.70×10^4 , 297 K	1.09	nd	Ma and others 2017
Crassirhizom oside C	Flavonol glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:6	4.70×10^4 , 297 K	1.07	nd	Ma and others 2017
Sutchuenosid	Flavonol	BSA fluorescence	pH 7.4, up to	4.60×10^4 , 297 K	1.08	nd	Ma and others 2017

e A	glycoside	quenching	BSA: ligand ratio 1:6				
Formononetin	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:15	2.22×10^4 , 298 K	0.90	nd	Liu and others 2010a
Genistein	Isoflavone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:10	8.40×10^5 , 310.15 K	1.02	nd	Zhao and others 2009
Genistein	Isoflavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	8.40×10^5 , 310 K	1.02	nd	Xiao and others 2009
Genistein	Isoflavone	BSA fluorescence quenching	pH 7.4	1.38×10^4 , 300.15 K	0.90	nd	Shi and Cao 2011
Genistin	Isoflavone glycoside	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:25	1.44×10^5 , 310.15 K	1.17	nd	Zhao and others 2009
Genistin	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:25	1.44×10^5 , 310 K	1.17	nd	Xiao and others 2009
Genistin	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4	1.86×10^3 , 300.15 K	0.81	nd	Shi and Cao 2011
Daidzein	Isoflavone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:25	5.20×10^4 , 310.15 K	1.04	nd	Zhao and others 2009
Daidzein	Isoflavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:25	5.42×10^4 , 310 K	1.04	nd	Xiao and others 2009
Daidzein	Isoflavone	BSA fluorescence quenching	pH 7.4	1.70×10^3 , 300.15 K	0.77	nd	Shi and Cao 2011
Daidzin	Isoflavone glycoside	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:25	5.58×10^3 , 310.15 K	0.88	nd	Zhao and others 2009
Daidzin	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:25	5.58×10^3 , 310 K	0.88	nd	Xiao and others 2009
Biochanin A	Isoflavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:1	5.01×10^4 , RT	0.84	nd	Awasthi and others 2014
Biochanin A	Isoflavone	BSA fluorescence quenching	pH 7.4	1.00×10^5 , 300.15 K	1.09	nd	Shi and Cao 2011

Tectorigenin	Isoflavone	BSA fluorescence quenching	pH 7.4	2.57×10^3 , 300.15 K	1.09	nd	Shi and Cao 2011
Puerarin	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:100	1.13×10^4 , 293 K	0.93	nd	Xiao and others 2007b
Puerarin	Isoflavone glycoside	Isothermal titration calorimetry, single site binding model	pH 7.4, up to BSA: ligand ratio 1:16	1.44×10^3 , 298 K	1.02	nd	Xi and Fan 2010
Puerarin	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:40	1.58×10^3 , 310 K	0.73	nd	Xiao and others 2009
Puerarin	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4	5.37×10^3 , 300.15 K	0.88	nd	Shi and Cao 2011
Calycosin	Isoflavone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:15	5.59×10^4 , 298 K	0.97	nd	Liu and others 2010a
Calycosin-7-O- β -D-glucoside	Isoflavone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:15	1.89×10^4 , 298 K	0.96	nd	Liu and others 2010a
Naringenin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:1.2	4.08×10^4 , 291 K	0.96	nd	Bi and others 2012
Naringenin	Flavanone	BSA fluorescence quenching	pH 7.5	3.1×10^5 , 298 K	0.99	nd	Skrt and others 2012
Naringenin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:5.18	3.04×10^5 , 298 K	1.06	nd	Liu and others 2014
Naringenin	Flavanone	BSA fluorescence quenching	pH 7.4	1.05×10^5 , 300.15 K	1.03	nd	Shi and Cao 2011
Naringin	Flavanone glycoside	BSA fluorescence quenching	pH 7.4	3.55×10^3 , 300.15 K	0.81	nd	Shi and Cao 2011
Naringin	Flavanone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:4.15	8.70×10^2 , 298 K	0.63	nd	Liu and others 2014
Hesperetin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:1.2	5.40×10^4 , 291 K	1.29	nd	Bi and others 2012

Hesperetin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:5.18	5.59×10^3 , 298 K	1.08	nd	Liu and others 2014
Hesperetin	Flavanone	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:0.1	3.02×10^4 , 295 K	0.83	nd	Shang and Li 2011
Hesperidin	Flavanone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:3.73	2.50×10^3 , 298 K	0.74	nd	Liu and others 2014
Hesperidin	Flavanone glycoside	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:0.1	9.89×10^4 , 295 K	1.02	nd	Shang and Li 2011
Dihydromyricetin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:70	1.30×10^3 , 300 K	1.11	nd	Guo and others 2014
Dihydromyricetin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:2	1.36×10^4 , 310 K	0.99	nd	Liu and others 2010b
Liquiritigenin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:6.7	1.8×10^4 , 298 K	0.88	nd	Hou and others 2017
Isoliquiritigenin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:6.7	2.52×10^3 , 298 K	1.04	nd	Hou and others 2017
Liquiritin	Flavanone	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:6.7	2.7×10^4 , 298 K	0.94	nd	Hou and others 2017
Liquiritin apioside	Flavanone glycoside	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:6.7	4.8×10^4 , 298 K	0.95	nd	Hou and others 2017
GCG	Flavanonol	BSA fluorescence quenching	pH 7.4	2.29×10^4 , 300.15 K	0.96	nd	Shi and Cao 2011
EGCG	Flavanonol	BSA fluorescence quenching	pH 7.5	1.4×10^6 , 298 K	0.98	nd	Skrt and others 2012
EGCG	Flavanonol	BSA fluorescence quenching	pH 7.4	1.74×10^6 , 300.15 K	1.20	nd	Shi and Cao 2011
EGCG	Flavanonol	Quartz crystal microbalance with dissipation monitoring	pH 7, 4.9 and 3	nd	nd	nd	Wang and others 2007

EGCG	Flavanonol	Complex formation by size-exclusion chromatography	pH 7 and 4, up to BSA: ligand ratio 1:0.25(w/w)	nd	nd	nd	Hatano and others 2003
EGCG	Flavanonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:8.33	4.61×10^6 , 295 K	nd	nd	Li and Hagerman 2014
EGCG	Flavanonol	Induced circular dichroism	pH 7.0, up to BSA: ligand ratio 1:2.9	nd	nd	nd	Nozaki and others 2009
ECG	Flavanonol	BSA fluorescence quenching	pH 7.5	1.5×10^6 , 298 K	0.90	nd	Skrt and others 2012
ECG	Flavanonol	BSA fluorescence quenching	pH 7.4	6.46×10^6 , 300.15 K	1.27	nd	Shi and Cao 2011
ECG	Flavanonol	Isothermal titration calorimetry, single site binding model	pH 6.7, up to BSA: ligand ratio 1:2.25	2.70×10^5 , 298 K	1.03	nd	Pal and others 2012
EGC	Flavanonol	BSA fluorescence quenching	pH 7.5	1.4×10^5 , 298 K	0.40	nd	Skrt and others 2012
EC	Flavanonol	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:50	4.57×10^3 , 288 K	0.88	nd	Zhai and others 2014
EC	Flavanonol	Isothermal titration calorimetry, single site binding model	pH 6.7, up to BSA: ligand ratio 1:2.25	9.68×10^4 , 298 K	0.93	nd	Pal and others 2012
Catechin	Flavanonol	Equilibrium dialysis	pH 7.5	1.12×10^7 , 295 K	3.46	nd	Mitra 2012
Tea catechins	Flavanonol	Isothermal titration calorimetry, multiple binding sites model	pH 6, up to BSA: ligand ratio 1:150	1.36×10^2 , 298 K	18.5	nd	Frazier and others 2010
Resveratrol	Stilbene	Enhancement of ligand fluorescence, Scatchard analysis	pH 7.4, up to BSA: ligand ratio 1:90	8.62×10^5 , 298 K	1.1	nd	Latruffe and others 2014
Transresverat	Stilbene	BSA fluorescence	pH 7.4, up to	8.71×10^4 , 297 K	1.03	nd	Liu and others 2013

rol		quenching	BSA: ligand ratio 1:8				
Transresveratrol	Stilbene	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:90	1.27×10^5 , 293.15 K	1.22	nd	Xiao and others 2008a
Chlorogenic acid	Phenolic acid	BSA fluorescence quenching	pH 7.8, up to BSA: ligand ratio 1:10	7.90×10^4 , 298 K	0.96	nd	He and others 2010
Chlorogenic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:30	9.20×10^4 , 298 K	0.99	nd	Jin and others 2012
Chlorogenic acid	Phenolic acid	Analytical ultracentrifugation	pH 7.0, up to BSA: ligand ratio 1:95	nd	nd	nd	Seifert and others 2004
Chlorogenic acid	Phenolic acid	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:10	4.29×10^6 , 298 K	1.00	nd	Xiao and others 2016
Chlorogenic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	6.67×10^5 , 310 K	1.23	nd	Trnková and others 2010
Chlorogenic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:8	9.4×10^4 , 298 K	1.09	nd	Tang and others 2008
Caffeic acid	Phenolic acid	BSA fluorescence quenching	pH 7.8, up to BSA: ligand ratio 1:10	6.17×10^4 , 298 K	0.93	nd	He and others 2010
caffeic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	4.16×10^5 , 310 K	1.18	nd	Trnková and others 2010
Caffeic acid	Phenolic acid	BSA fluorescence quenching	pH 7.5	3.0×10^5 , 298 K	0.41	nd	Skrt and others 2012
Caffeic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:30	6.07×10^4 , 298 K	1.00	nd	Jin and others 2012
methyl 3,4-di-O-caffeoylquininate	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:8	3.81×10^6 , 298 K	1.27	nd	Tang and others 2008
methyl 3,5-di-O-caffeoylquininate	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:8	1.29×10^6 , 298 K	1.21	nd	Tang and others 2008

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3,4-di-O-caffeoylquinic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:8	1.25×10^6 , 298 K	1.21	nd	Tang and others 2008
3,5-di-O-caffeoylquinic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:8	8.59×10^5 , 298 K	1.19	nd	Tang and others 2008
Ferulic acid	Phenolic acid	BSA fluorescence quenching	pH 7.8, up to BSA: ligand ratio 1:10	5.09×10^4 , 298 K	0.91	nd	He and others 2010
Ferulic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:30	0.51×10^4 , 298 K	0.82	nd	Jin and others 2012
ferulic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	3.39×10^5 , 310 K	1.18	nd	Trnková and others 2010
o-coumaric acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	3.34×10^5 , 310 K	1.17	nd	Trnková and others 2010
m-coumaric acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	1.31×10^5 , 310 K	1.08	nd	Trnková and others 2010
m-coumaric acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:30	1.14×10^4 , 298 K	0.86	nd	Jin and others 2012
p-coumaric acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:30	1.08×10^4 , 298 K	0.84	nd	Jin and others 2012
p-Coumaric acid	Phenolic acid	BSA fluorescence quenching	pH 7.5	4.0×10^5 , 298 K	0.45	nd	Skrt and others 2012
p-coumaric acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:10	1.81×10^5 , 310 K	1.10	nd	Trnková and others 2010
Cinnamic acid	Phenolic acid	BSA fluorescence quenching	pH 7.8, up to BSA: ligand ratio 1:10	2.52×10^4 , 298 K	0.84	nd	He and others 2010
Sinapic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to BSA: ligand ratio 1:30	0.17×10^4 , 298 K	0.74	nd	Jin and others 2012
sinapic acid	Phenolic acid	BSA fluorescence quenching	pH 7.4, up to	4.19×10^5 , 310 K	1.21	nd	Trnková and others

	acid	quenching	BSA: ligand ratio 1:10				2010
Rosmarinic acid	Phenolic acid	BSA fluorescence quenching	pH 7.5	3.2×10^5 , 298 K	0.92	nd	Skrt and others 2012
Delphinidin-3-O-glucoside	Anthocyanin	BSA fluorescence quenching	pH 7, up to BSA: ligand ratio 1:5	1.98×10^5 , 298 K	1.10	nd	Zuo and others 2015
Tannic acid	Hydrolyzable tannins	Protein precipitation by spectrophotometry	pH 2 to 7	nd	nd	yes	Arimboor and Arumughan 2011
Tannic acid	Hydrolyzable tannins	Isothermal titration calorimetry, single site binding model	pH 6.75, up to BSA: ligand ratio 1:140	2.7×10^4 , 298 K	14	nd	Pripp and others 2005
Ellagitannin monomer	Hydrolyzable tannins	Isothermal titration calorimetry, single site binding model	pH 6, up to BSA: ligand ratio 1:28	1.84×10^4 , 298 K	6	nd	Karonen and others 2015
Ellagitannin dimer	Hydrolyzable tannins	Isothermal titration calorimetry, single site binding model	pH 6, up to BSA: ligand ratio 1:28	2.39×10^3 , 298 K	21	nd	Karonen and others 2015
Ellagitannin trimer	Hydrolyzable tannins	Isothermal titration calorimetry, single site binding model	pH 6, up to BSA: ligand ratio 1:28	2.52×10^3 , 298 K	30	nd	Karonen and others 2015
Ellagitannin pentamer	Hydrolyzable tannins	Isothermal titration calorimetry, single site binding model	pH 6, up to BSA: ligand ratio 1:28	4.65×10^3 , 298 K	46	nd	Karonen and others 2015
Ellagitannin octamer-undecamers	Hydrolyzable tannin	Isothermal titration calorimetry, single site binding model	pH 6, up to BSA: ligand ratio 1:28	5.12×10^3 , 298 K	85	nd	Karonen and others 2015
Myrabolan ellagitannins	Hydrolyzable tannins	Isothermal titration calorimetry, single site binding model	pH 6, up to BSA: ligand ratio 1:300	7.0×10^2 , 298 K	22	nd	Deaville and others 2007
Sumac	Hydrolyzable	Isothermal titration	pH 6, up to	1.7×10^5 , 298 K	9.4	nd	Deaville and others

gallotannins	le tannin	calorimetry, single site binding model	BSA: ligand ratio 1:350				2007
Gallotannin analogs chemically synthesized	Hydrolyzable tannins	Equilibrium dialysis	pH 2.25	nd	nd	nd	Feldman and others 1999
Gallotannins	Hydrolyzable tannins	Determination of remained free polyphenol after complex precipitation	BSA: ligand ratio 1:0.2 (w/w)	nd	nd	nd	He and others 2006
Pentagalloyl glucose	Hydrolyzable tannins	Isothermal titration calorimetry, single site binding model	pH 6, up to BSA: ligand ratio 1:55	2.2×10^5 , 298 K	16.5	nd	Deaville and others 2007
Tannin, MW 1701	Condensed tannin	Electrochemical quartz-crystal impedance system	pH 5.1	nd	2	nd	Zhang and others 2005
Proanthocyanidin tetramer	Condensed tannins	Isothermal titration calorimetry, single site binding model	pH 4, up to BSA: ligand ratio 1:100	6.28×10^3 , 283 K	53	nd	Kilmister and others 2016
Proanthocyanidin pentamer	Condensed tannins	Isothermal titration calorimetry, single site binding model	pH 4, up to BSA: ligand ratio 1:100	9.96×10^3 , 283 K	34	nd	Kilmister and others 2016
Proanthocyanidin hexamer	Condensed tannins	Isothermal titration calorimetry, single site binding model	pH 4, up to BSA: ligand ratio 1:100	1.71×10^4 , 283 K	21	nd	Kilmister and others 2016
Proanthocyanidin octamer	Condensed tannins	Isothermal titration calorimetry, single site binding model	pH 4, up to BSA: ligand ratio 1:100	1.40×10^4 , 283 K	18	nd	Kilmister and others 2016
Mimosa 5-deoxy	Condensed tannins	Isothermal titration calorimetry,	pH 6, up to BSA: ligand ratio 1:150	5.9×10^3 , 298 K	39	nd	Frazier and others 2010

proanthocyanidins		multiple binding sites model					
Grape seed proanthocyanidins	Condensed tannin	Isothermal titration calorimetry, multiple binding sites model	pH 6, up to BSA: ligand ratio 1:150	1.5×10^3 , 298 K	7	nd	Frazier and others 2010
Sorghum procyanidins	Condensed tannins	Isothermal titration calorimetry, multiple binding sites model	pH 6, up to BSA: ligand ratio 1:150	3.3×10^4 , 298 K	11	nd	Frazier and others 2010
Sea buckthorn kernel proanthocyanidins	Condensed tannins	Protein precipitation by spectrophotometry	pH 2 to 7	nd	nd	yes	Arimboor and Arumughan 2011
Condensed tannins from 35 different sources	Condensed tannins	Protein aggregation by turbidimetry	pH 6.0, up to BSA: ligand ratio 1:	nd	nd	nd	Ropiak and others 2017
Flos Lonicerae Japonicae	Mixture	Microdialysis coupled with HPLC-DAD-MS	pH 7.4	nd	nd	nd	Qian and others 2008b
Red wines	Mixture	Protein precipitation by spectrophotometry	pH 4.9	nd	nd	nd	Kemp and others 2011
Flos Lonicerae Japonicae extract	Mixture	Binding degree by centrifugal ultrafiltration coupled with HPLC	pH 7.4 and 6.2	nd	nd	nd	Qian and others 2008

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