Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

Study of the Structure-Activity Relationship of Flavonoids Based on Their Interaction with Human Serum Albumin

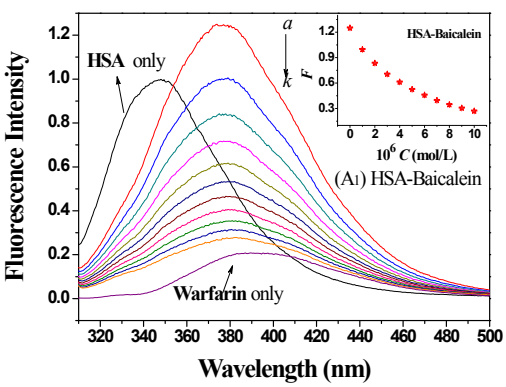
Bao Tu, Zhi-Feng Chen, Zhi-Juan Liu, Rong-rong Li, Yu Ouyang, Yan-Jun Hu*

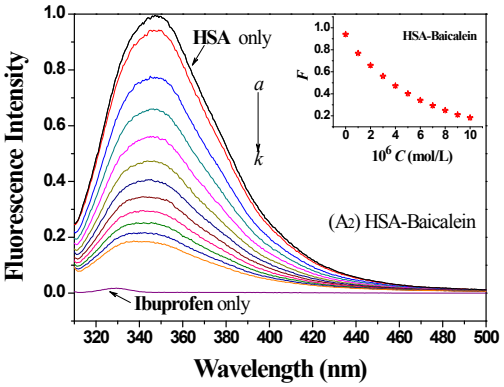
Hubei Collaborative Innovation Center for Rare Metal Chemistry, Hubei Key Laboratory of Pollutant Analysis & Reuse Technology, Department of Chemistry, Hubei Normal University, Huangshi 435002, PR China

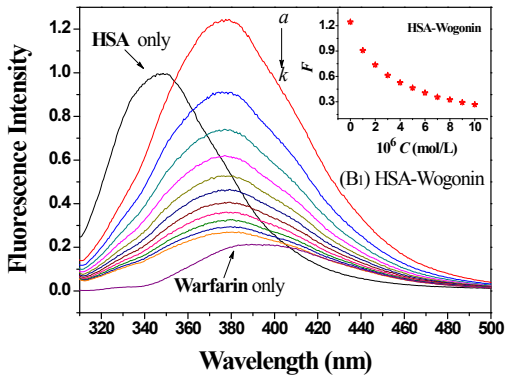
Corresponding Author:

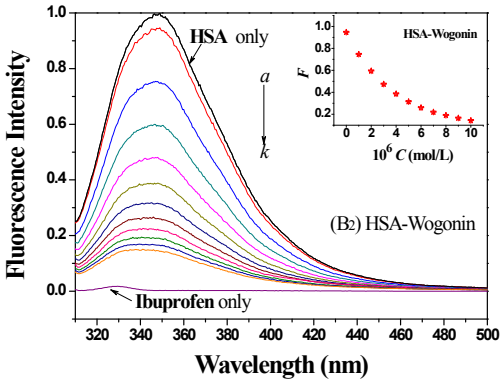
E–mail: yjhu@263.net (Y.J. Hu);

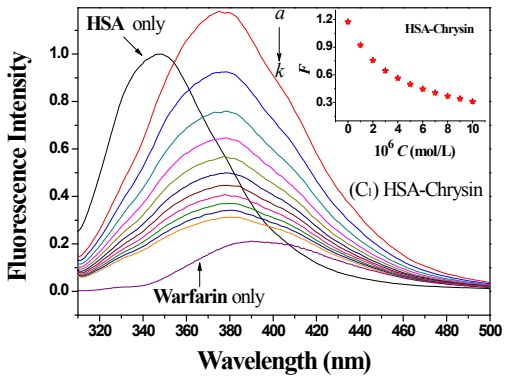
Tel.: +86–714–6515602; Fax: +86–714–6573832.

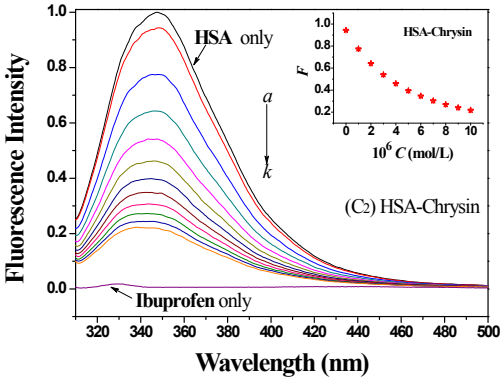

HSA only
a
k
Warfarin only
HSA-Baicalein
F
10^6 C (mol/L)
(A1) HSA-Baicalein
Fluorescence Intensity
Wavelength (nm)

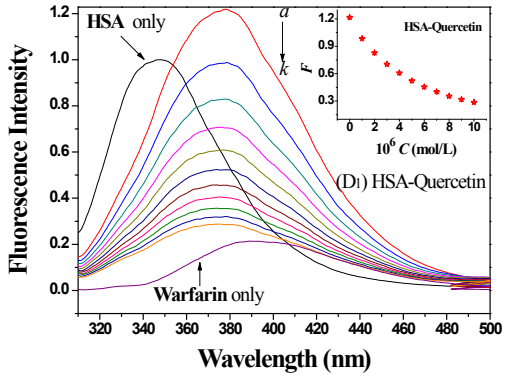

HSA only
a
k
Ibuprofen only
HSA-Baicalein
F
10^6 C (mol/L)
(A2) HSA-Baicalein
Fluorescence Intensity
Wavelength (nm)

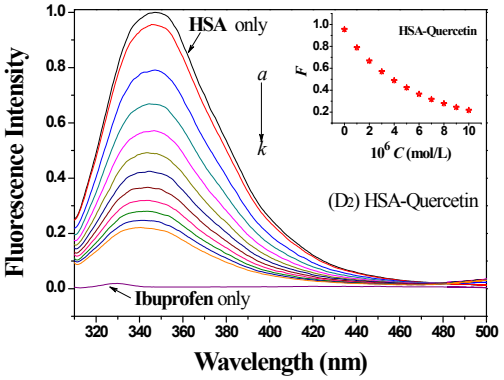

HSA only
a
k
Warfarin only
HSA-Wogonin
F
10^6 C (mol/L)
(B1) HSA-Wogonin
Fluorescence Intensity
Wavelength (nm)


HSA only
a
k
Ibuprofen only
HSA-Wogonin
F
10^6 C (mol/L)
(B2) HSA-Wogonin
Fluorescence Intensity
Wavelength (nm)


HSA only
a
k
Warfarin only
HSA-Chrysin
F
10^6 C (mol/L)
(C1) HSA-Chrysin
Fluorescence Intensity
Wavelength (nm)


HSA only
a
k
Ibuprofen only
HSA-Chrysin
F
10^6 C (mol/L)
(C2) HSA-Chrysin
Fluorescence Intensity
Wavelength (nm)


HSA only
a
k
Warfarin only
HSA-Quercetin
F
10^6 C (mol/L)
(D1) HSA-Quercetin
Fluorescence Intensity
Wavelength (nm)


HSA only
a
k
Ibuprofen only
HSA-Quercetin
F
10^6 C (mol/L)
(D2) HSA-Quercetin
Fluorescence Intensity
Wavelength (nm)

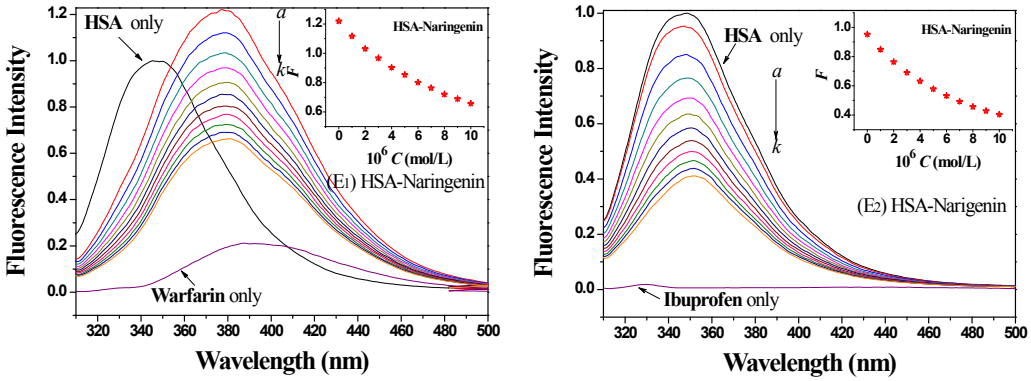


Figure S1. Effect of site marker on the HAS-flavonoids systems (T = 298 K, λ_{ex}= 295 nm). *a*–*j*: *c*(site marker) = *c*(HSA) = 5.0×10^{-6} mol·L^{-1}, *c*(flavonoids)/(10^{-6}), from 0.0 to 10.0 mol·L^{-1} at an increment of 1. Figures A_1–E_1 display the emission spectras of HSA-Warfarin system after addition flavonoids, Figures A_2–E_2 display the emission spectras of HSA-Ibuprofen system after addition flavonoids, the inserts correspond to the fluorescence intensity with addition of flavonoids.

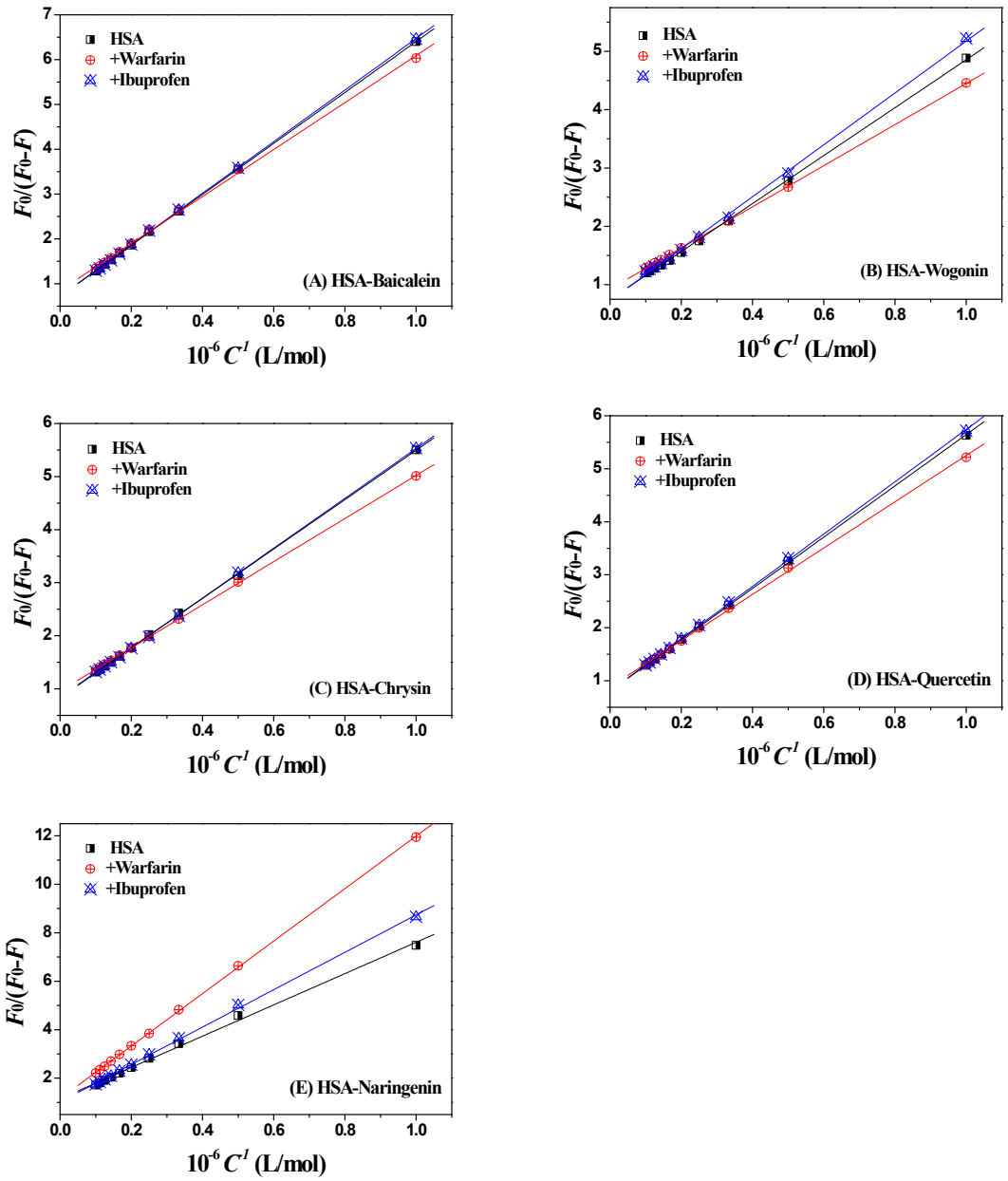
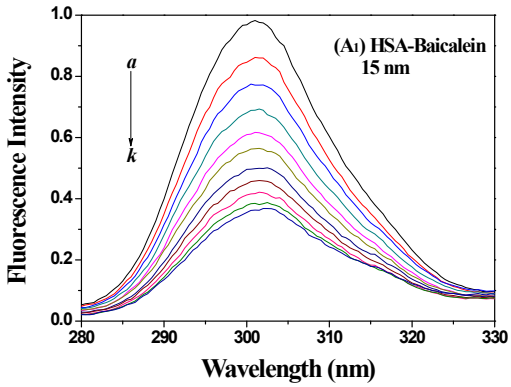
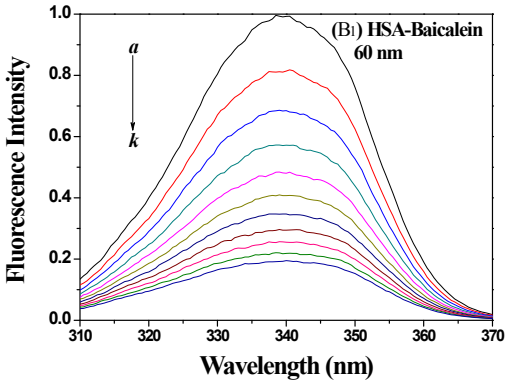
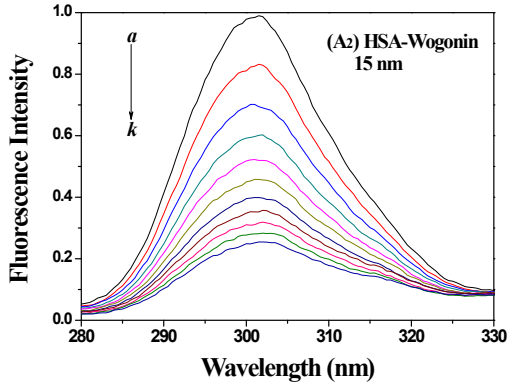
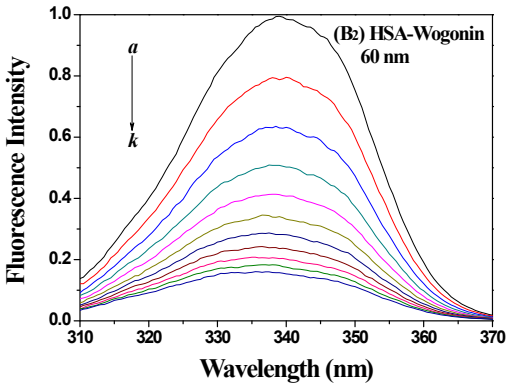


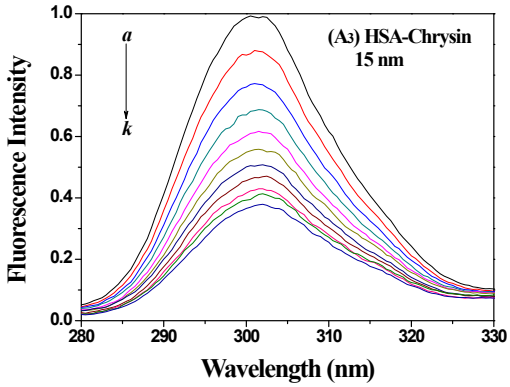
Figure S2. Modified Stern-Volmer plots of HSA-flavonoids binding competitive experiments. Figures A–E display modified Stern-Volmer plots of baicalein, wogonin, chrysin, quercetin and naringenin system, respectively.

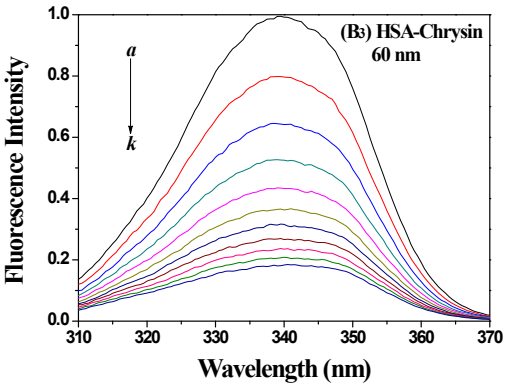

(A1) HSA-Baicalein
15 nm
a
k
Fluorescence Intensity
Wavelength (nm)

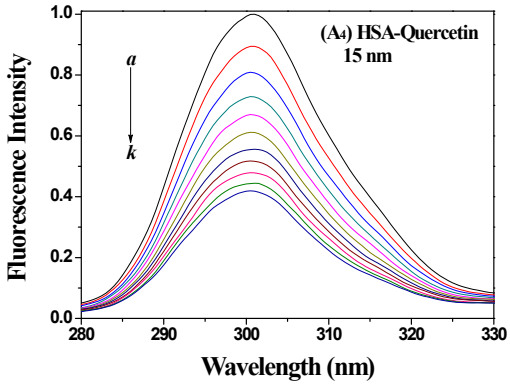

(B1) HSA-Baicalein
60 nm
a
k
Fluorescence Intensity
Wavelength (nm)

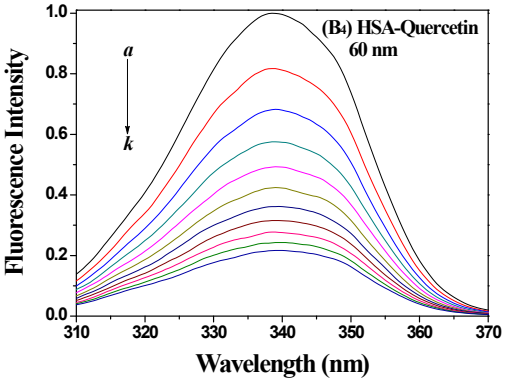

(A2) HSA-Wogonin
15 nm
a
k
Fluorescence Intensity
Wavelength (nm)


(B2) HSA-Wogonin
60 nm
a
k
Fluorescence Intensity
Wavelength (nm)


(A3) HSA-Chrysin
15 nm
a
k
Fluorescence Intensity
Wavelength (nm)


(B3) HSA-Chrysin
60 nm
a
k
Fluorescence Intensity
Wavelength (nm)


(A4) HSA-Quercetin
15 nm
a
k
Fluorescence Intensity
Wavelength (nm)


(B4) HSA-Quercetin
60 nm
a
k
Fluorescence Intensity
Wavelength (nm)

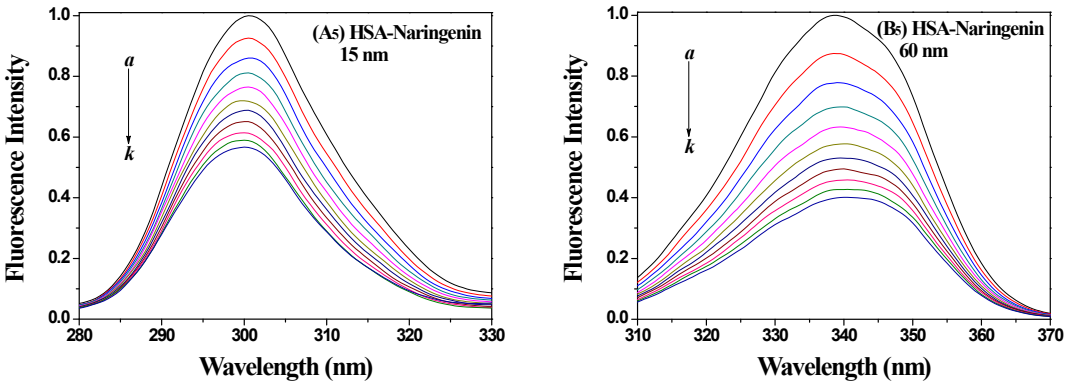


Figure S3. Synchronous fluorescence spectras about HSA–flavonoids. Figures A_1–A_5 display emission spectras in the addition of different flavonoids when $\Delta\lambda$ = 15 nm, Figures B_1–B_5 display emission spectras when $\Delta\lambda$ = 60 nm.