

Fig. S1 TGA spectra of polymer and polymer-functionalized nanocomposites. HA (A), CMC (B), HA-ZnONcs (C) and CMC-ZnONcs (D).

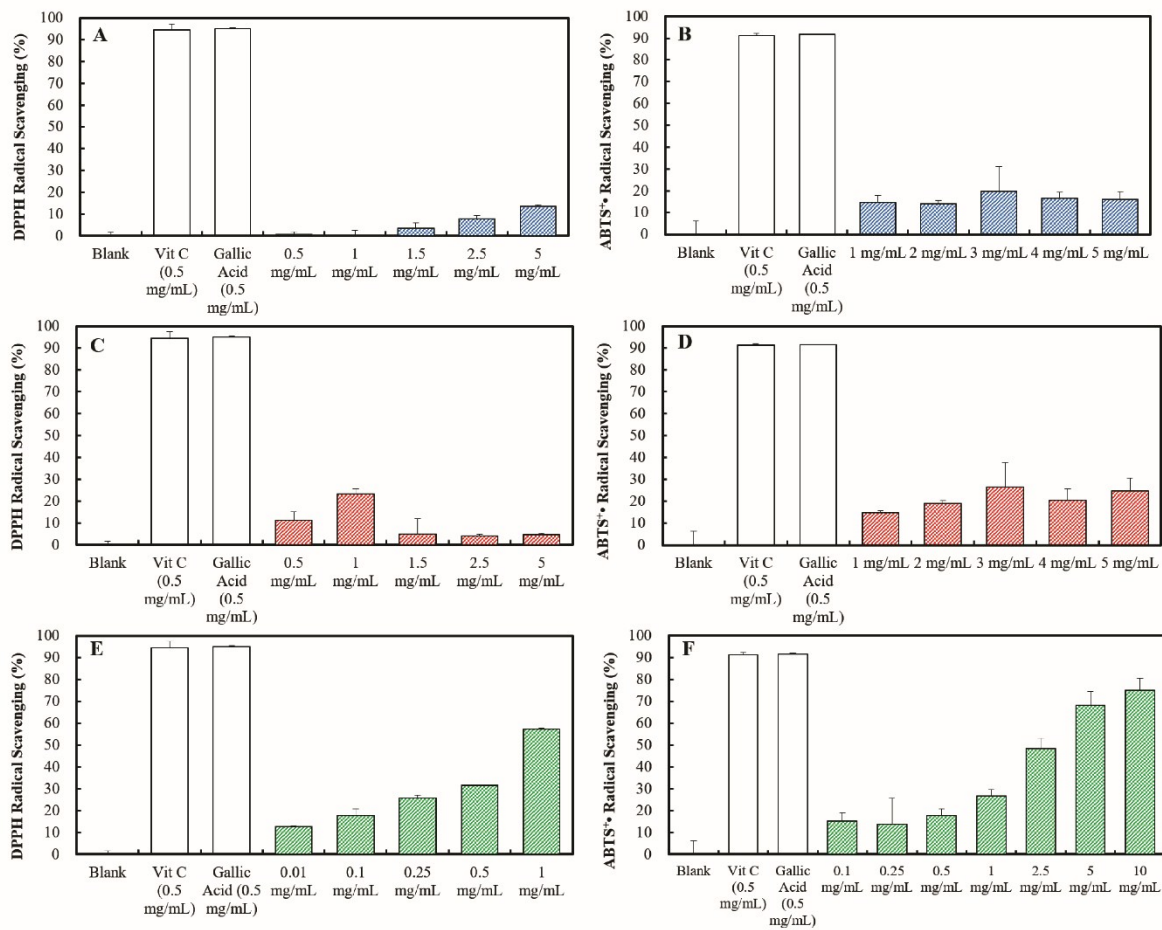


Fig. S2 In vitro antioxidant activity of HA (blue), CMC (red), and *D. morbifera* leaf extract (green). DPPH scavenging activity (A, C, E) and ABTS⁺ radical scavenging capacity (B, D, F).

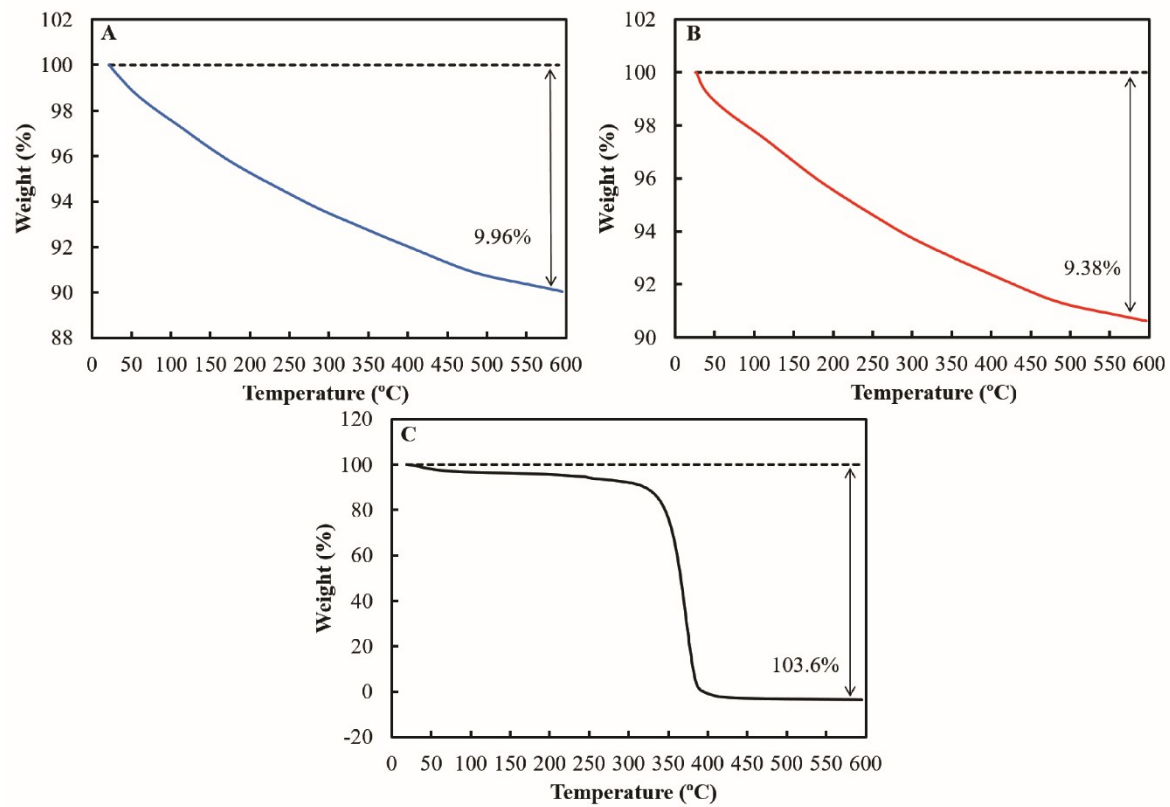


Fig. S3 TGA spectra of Rh2-conjugated ZnONcs and ginsenoside Rh2. Rh2-HA-ZnONcs (A), Rh2-CMC-ZnONcs (B), ginsenoside Rh2 (C).

Table S1 Absorbance of 200 $\mu\text{g/mL}$ of ZnONcs suspension and commercial sunscreen.

Wavelength (nm)	EE \times I	HA- ZnONcs	CMC- ZnONcs	Rh2-HA- ZnONcs	Rh2-CMC- ZnONcs	Commercial sunscreen
290	0.02	1.14 ± 0.01	1.12 ± 0.01	1.37 ± 0.01	1.31 ± 0.01	1.79 ± 0.18
295	0.08	1.15 ± 0.01	1.12 ± 0.01	1.38 ± 0.01	1.32 ± 0.01	1.70 ± 0.08
300	0.29	1.16 ± 0.01	1.13 ± 0.01	1.38 ± 0.01	1.33 ± 0.01	1.69 ± 0.06
305	0.33	1.17 ± 0.01	1.13 ± 0.01	1.39 ± 0.02	1.330 ± 0.004	1.65 ± 0.05
310	0.19	1.17 ± 0.01	1.14 ± 0.01	1.40 ± 0.01	1.34 ± 0.01	1.66 ± 0.05
315	0.08	1.18 ± 0.01	1.15 ± 0.01	1.40 ± 0.02	1.35 ± 0.01	1.66 ± 0.04
320	0.02	1.18 ± 0.01	1.15 ± 0.02	1.40 ± 0.02	1.360 ± 0.004	1.67 ± 0.02