

Supplementary Materials

Table S1. Summary of obtained results from photostabilization evaluation, determination of antioxidative potencies and UV spectral analysis.

	Residual amounts of NPX after UV irradiation (%)	Antioxidative activity ($\mu\text{mol/L}$)	λ_{max} (nm) and ϵ ($\text{L mol}^{-1} \text{cm}^{-1}$) in the wavelength above 260 nm
NPX	84.14 ± 3.76	$0.00 \pm 0.00^{\text{A}}$	332 nm (1853), 318 nm (1481), 272 nm (5178), 263 nm (5144)
Ascorbic acid	86.76 ± 1.75	$1435.24 \pm 140.96^{\text{BC}}$	-
Zingerone	87.68 ± 1.94	$3569.78 \pm 266.72^{\text{D}}$	282 nm (2,984)
Catechin	88.89 ± 3.67	$8330.43 \pm 270.85^{\text{E}}$	280 nm (4,114)
Isoascorbic acid	89.08 ± 1.67	$1316.20 \pm 485.79^{\text{BC}}$	-
Rutin	$91.50 \pm 2.99^{\#}$	$5570.02 \pm 996.27^{\text{F}}$	360 nm (17,607)
Daidzein	$92.74 \pm 1.05^{\#}$	$0.00 \pm 0.00^{\text{A}}$	303 nm (10,279)
Chlorogenic acid	$94.09 \pm 0.71^{\#}$	$2204.67 \pm 162.18^{\text{BC}}$	329 nm (20,032), 301 nm (15,213)
Genistein	$97.31 \pm 0.77^{##}$	$848.55 \pm 554.90^{\text{AC}}$	262 nm (44,251)
Quercetin	$97.91 \pm 0.66^{##}$	$8031.04 \pm 498.82^{\text{D}}$	370 nm (23,971)
Curcumin	$98.94 \pm 0.57^{##}$	$1885.07 \pm 167.05^{\text{B}}$	424 nm (72,442), 263 nm (16,933)
Resveratrol	$99.36 \pm 1.14^{##}$	$5505.10 \pm 106.48^{\text{F}}$	308 nm (34,140)

Additives in light gray columns showed significant photoprotective effects on NPX photodegradation although residual amounts of NPX were significantly lower compared to those of control samples, and in dark gray columns completely suppressed NPX photodegradation. Values of residual amounts of NPX (%) and antioxidative activity ($\mu\text{mol/L}$) represent the mean \pm S.D. (n=4). [#]Difference compared with NPX ($p < 0.05$) and ^{##}difference compared with NPX ($p < 0.01$). Means in the same column without a common superscript (A-F) are significantly different ($p < 0.05$).

Figure S1. The scheme of experimental procedure of the evaluation of photostabilization potencies of selected additives for NPX photodegradation.

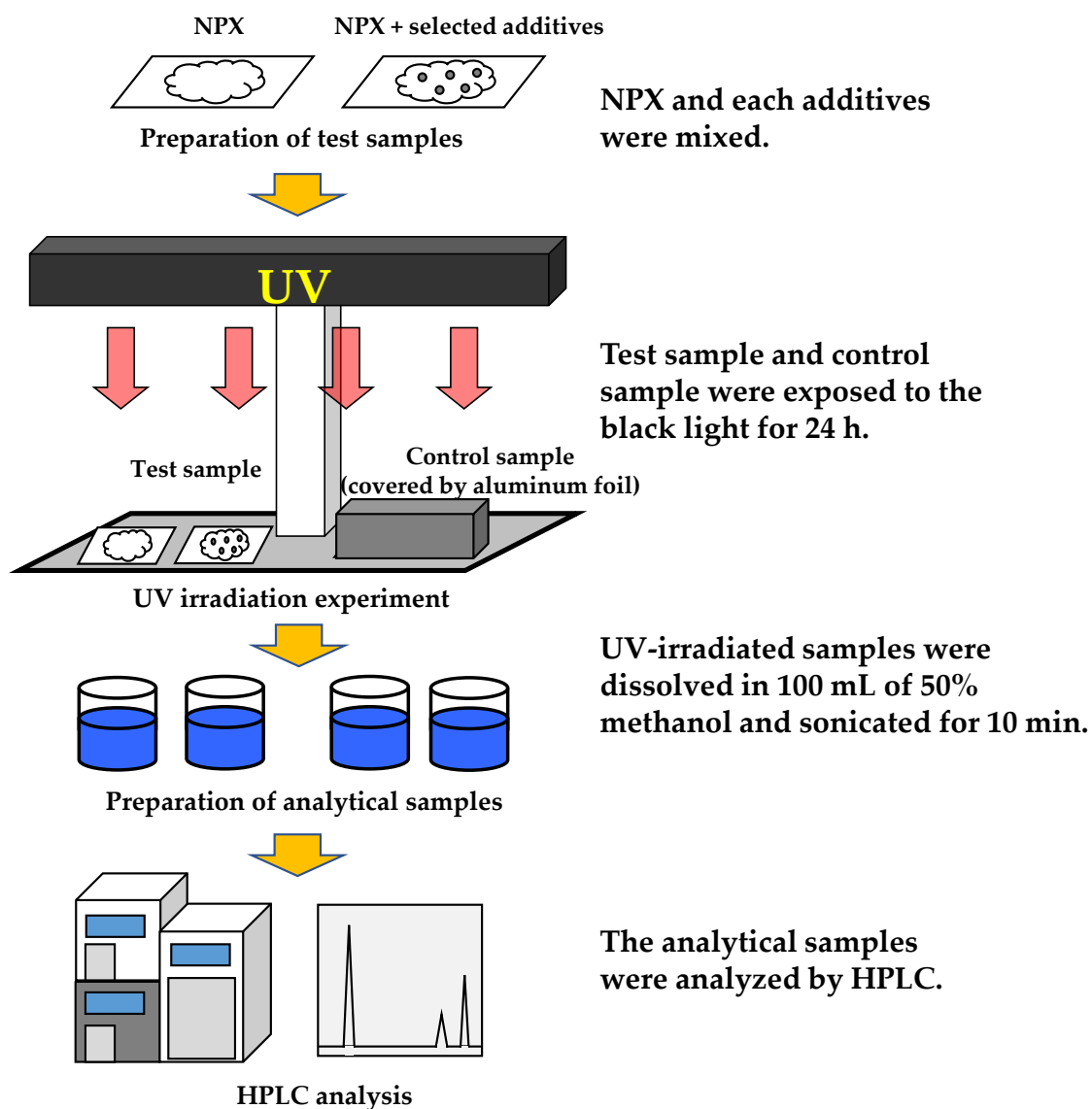


Figure S2. Residual amounts of selected additives in the UV-irradiated powder in the presence of NPX. Values represent mean \pm S.D. (n = 4). *Difference compared with control (p < 0.05) and ***difference compared with control (p < 0.001).

