Supporting information

Food-borne nanocarriers from roast beef patties for iron delivery

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Element	15 min	30 min	45 min
C _{1s}	75.75%	63.48%	65.3%
N _{1s}	5.64%	20.14%	15.91%
O _{1s}	18.08%	16.16%	18.19%

Table S1. XPS analysis of FNs in beef patties roasted for 15, 30 and 45 min.

Table S2. Fluorescence properties of FNs and Fe(II)-FNs.

Item	FNs	Fe(II)-FNs
Maximum excitation wavelength (nm)	320	330
Maximum emission wavelength (nm)	398	416
Fluorescence lifetime (ns)	5.98	5.70



Fig. S1 XPS spectrum (a), high-resolution (b) C $_{1s}$, (c) N $_{1s}$, and (d) O $_{1s}$ spectra of the FNs from roast beef patties at 15 min. XPS spectrum (e), high-resolution (f) C $_{1s}$, (g) N $_{1s}$, and (h) O $_{1s}$ spectra of the FNs from roast beef patties at 30 min. XPS spectrum (i), high-resolution (j) C $_{1s}$, (k) N $_{1s}$, and (l) O $_{1s}$ spectra of the FNs from roast beef patties at 45 min.



Fig. S2 XPS high-resolution (a) C $_{1s}$, (b) N $_{1s}$, and (c) O $_{1s}$ spectra of Fe(II)-FNs