Supporting Information

Multi-Ligand Metal–Phenolic Assembly from Green Tea Infusions

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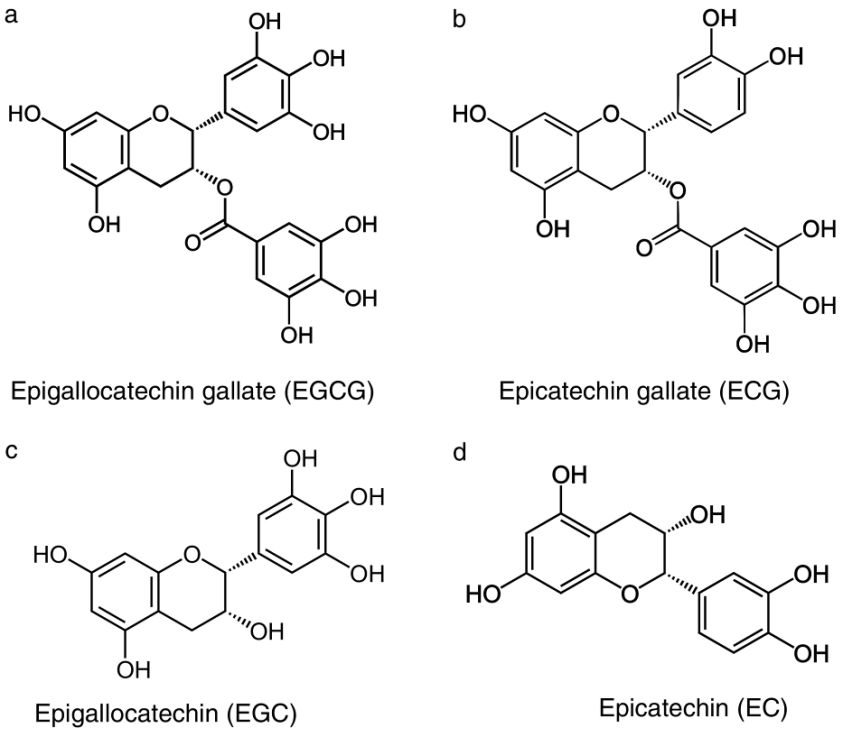

Figure S1. Chemical structures of the major GTCs present in GT: a) EGCG, b) ECG, c) EGC, and d) EC.

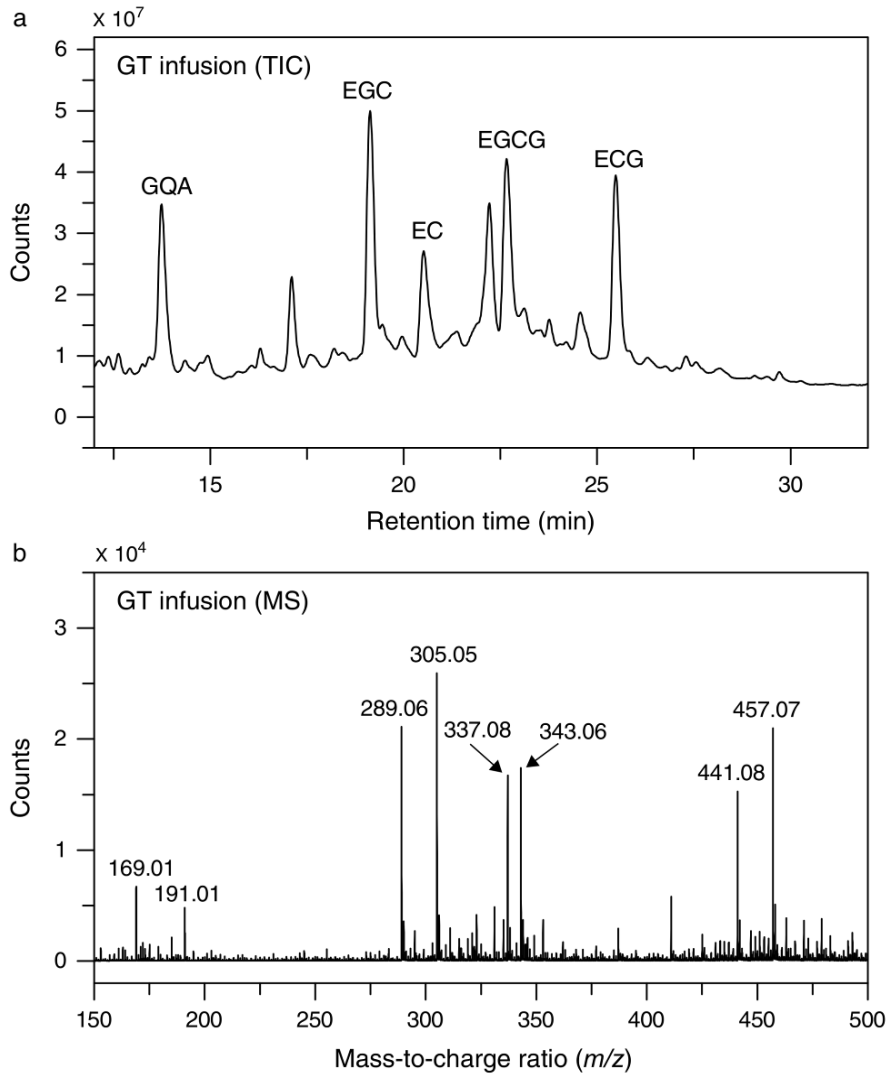

Figure S2. Liquid chromatography-mass spectrometry (LC-MS) analysis of a GT infusion. Total ion chromatogram (TIC) showing retention times (a) of the major compounds in GT infusion including galloquinic acid (GQA), EGC, EC, EGCG, and ECG. Retention times were found to be 13.7 (GQA), 19.1 (EGC), 20.5 (EC), 22.7 (EGCG), and 25.6 (ECG) min. The corresponding mass analyses (b) are summarized in Table S1.

Table S1. Summary of mass analyses of a GT infusion (from LC-MS analysis in Figure S2).

Compound	**Abbreviation**	**Formula**	**Detected *m/z***	**Theoretical *m/z***
Gallic acid	GA	$C_7H_6O_5$	169.01	169.01
Quinic acid	QA	$C_7H_{12}O_6$	191.01	191.05
Epicatechin	EC	$C_{15}H_{14}O_6$	289.06	289.07
Epigallocatechin	EGC	$C_{15}H_{14}O_7$	305.05	305.06
Coumaroylquinic acid	CQA	$C_{16}H_{18}O_8$	337.08	337.09
Galloylquinic acid	GQA	$C_{14}H_{16}O_{10}$	343.06	343.06
Epicatechin gallate	ECG	$C_{22}H_{18}O_{10}$	441.08	441.08
Epigallocatechin gallate	EGCG	$C_{22}H_{18}O_{11}$	457.07	457.07

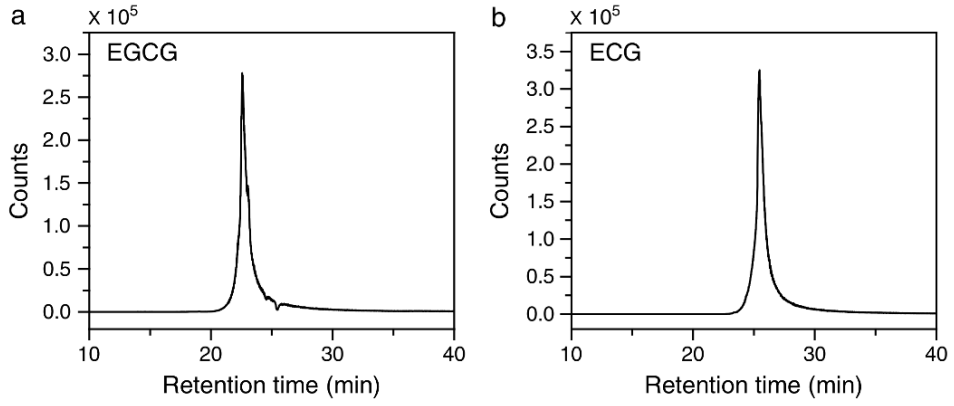

Figure S3. Extracted ion chromatograms showing the retention times of (a) pure EGCG (*m/z* 457.07) and (b) ECG (*m/z* 441.08). Retention times were found to be ~22.7 and ~25.6 min for pure EGCG and ECG, respectively.

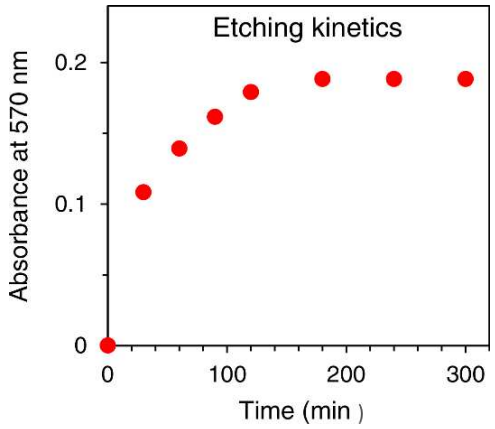

Figure S4. Etching kinetics of a rusted nail in a GT infusion. LMCT band appeared at 570 nm due to the formation of GTC/Fe^{III} complexes via etching. The intensity of this band was observed to saturate after around 3 h.

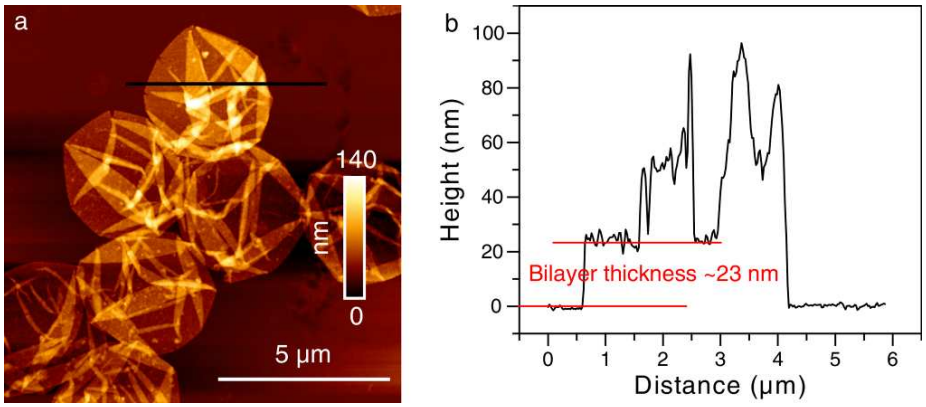

Figure S5. AFM micrograph (a) of GT/R-Fe^{III} capsules obtained after 40 min of reaction time (from the immersion of the rusted iron nail into the GT/template dispersion until sampling), and the corresponding height profile (b) showing the collapsed bilayer thickness of the films (capsule shell thickness can be calculated as half of the bilayer thickness).

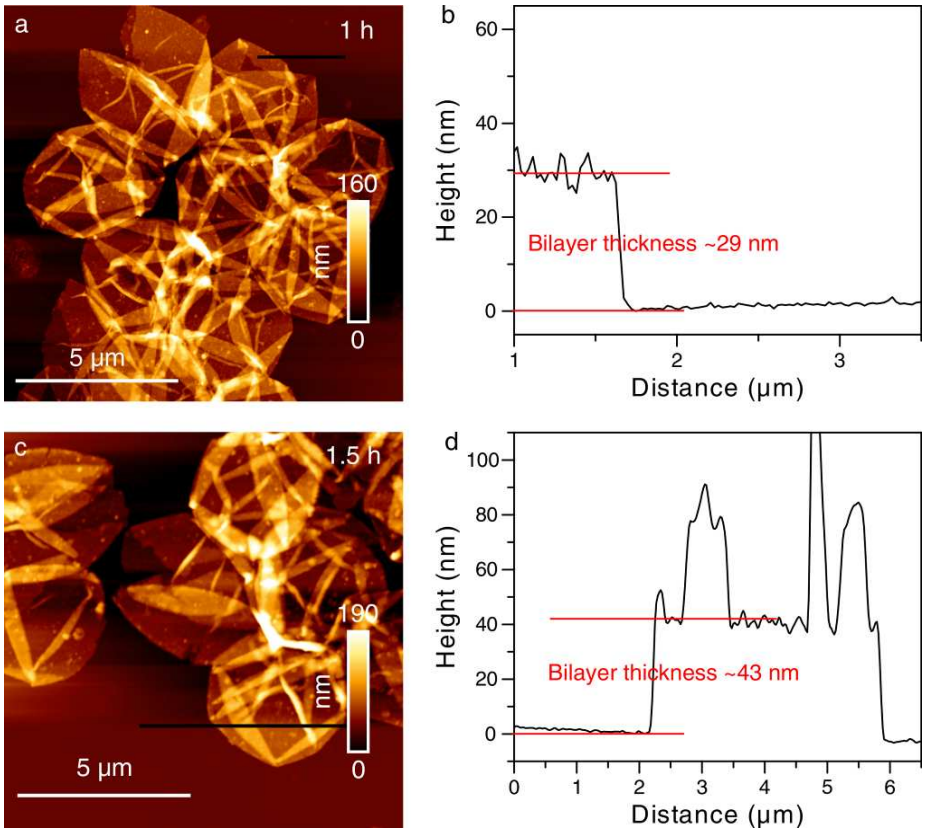

Figure S6. AFM topographies and corresponding height profiles of GT/R-Fe^{III} capsules with increasing thickness over time: after 1 h (a,b) and 1.5 h (c,d) reaction time.

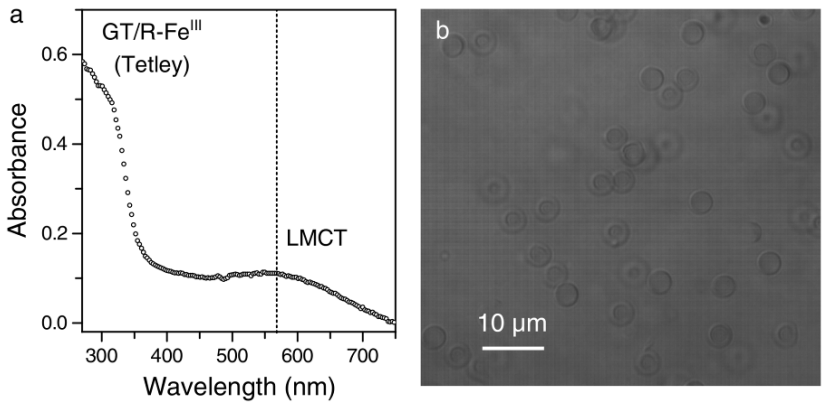

Figure S7. UV–vis absorption spectrum (a) and DIC image (b) of GT/R-Fe^{III} capsules prepared by another commercial brand (Tetley) of green tea.

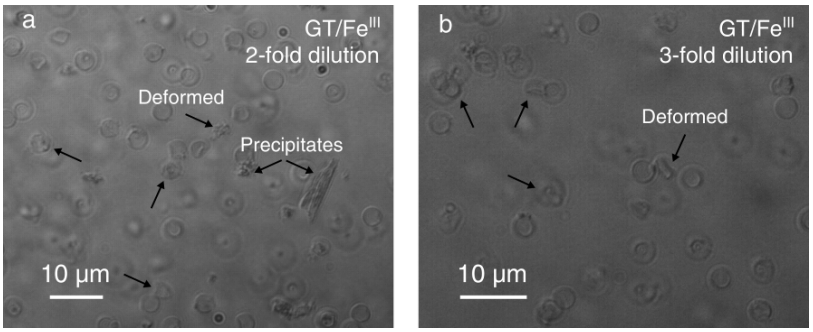

Figure S8. DIC images of GT/Fe^{III} capsules (i.e., prepared using the conventional, iron salt solution-based method) prepared at 2-fold (a) and 3-fold (b) dilutions of the starting components.