

Electronic Supplementary Material (ESI) for Food & Function This journal is © The Royal Society of Chemistry 2011 Cu/GT (1:1) 50% MeOH RT

(b) pH 2.1 (c) pH 3.7 (d) pH 4.6 (e) pH 5.3 (f) pH 6.8 (g) pH 7.3 (h) pH 8.7 (i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(a) pH 1.4		~ ~ ~ ~	\sim
(c) pH 3.7 (d) pH 4.6 (e) pH 5.3 (f) pH 6.8 (g) pH 7.3 (h) pH 8.7 (i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(b) pH 2.1			
(d) pH 4.6 (e) pH 5.3 (f) pH 6.8 (g) pH 7.3 (h) pH 8.7 (i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(c) pH 3.7			
(e) pH 5.3 (f) pH 6.8 (g) pH 7.3 (h) pH 8.7 (i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(d) pH 4.6			\sim
(f) pH 6.8 (g) pH 7.3 (h) pH 8.7 (i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(e) pH 5.3			\sim
(g) pH 7.3 (h) pH 8.7 (i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(f) pH 6.8		\sim	
(h) pH 8.7 (i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(g) pH 7.3			
(i) pH 9.8 (j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(h) pH 8.7			
(j) pH 10.5 (k) pH 11.4 (l) pH 12.8	(i) pH 9.8			
(k) pH 11.4	(j) pH 10.5			
(l) pH 12.8	(k) pH 11.4			
	(l) pH 12.8			
250 275 300 325 350 375	250 275	300 225	350	375
230 275 300 325 350 375 Magnetic field (mT)	250 275	JUU 325 Magnetic field	(mT)	313

Cu/GT (1:5) 50% MeOH RT

250	275	300	325	350	375
				V	
(l) pH 1	12.7			\sqrt{V}	
(k) pH	11.5			N	
			Ň		
(j) pH 1	10.8			ΛV	
(i) pH 9	9.6				
(II) pH	0.0			//	
(h) mII	96		~		
(g) pH	7.9		\longrightarrow	//	
			V		
(f) pH 6	6.4		\longrightarrow	Λ^{\vee}	
			٦Ĵ	//	
(e) pH	6.0		$\neg \neg \land$	\wedge	
			$\sim M$		
(d) pH -	4.9		\sim	V	
(c) pH :	3.7		\bigwedge \land		
			$ \backslash / $		
(b) pH	2.8		$\backslash \bigvee$		
(1) F			\ \	\sim	\smile \smile

Figure S3

Cu/BT (1:1) 50% MeOH RT

(a) pH 1.5		\frown		
(b) pH 2.2		\frown	~~~~	
(c) pH 3.2		\frown		
(d) pH 4.5		\sim		
(e) pH 5.6				
(f) pH 6.7			M	
(g) pH 7.6				
(h) pH 8.4			M	
(i) pH 9.1				
(j) pH 10.3				
(k) pH 11.9			\sim	
(l) pH 13.0			\sim	
250	275 30	0 325 Magnetic field (350 mT)	375

Cu/BT (1:5) 50% MeOH RT

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5		$\backslash \bigvee$		
)		$\backslash \bigvee$		
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#### Cu/GT (1:1) 50% MeOH 77K

(a) pH 1.4					
(b) pH 2.1					
(c) pH 3.7			$\sim$	~~~~~~	
(d) pH 4.6			W	~~~~~	
(e) pH 5.3				~~~~~	
(f) pH 6.8					
(g) pH 7.3			-m		
(h) pH 8.7					
(i) pH 9.8					
(j) pH 10.5					
(k) pH 11.4					
(l) pH 12.8					
250	275	300 Magneti	325 ic field (mT)	350	375

Figure S6

# Cu/GT (1:5) 50% MeOH 77K

(a) pH 0.9			$\frown$		
(b) pH 2.8					
(c) pH 3.7					
(d) pH 4.9					
(e) pH 6.0					
(0) PT 010					
(f) pH 7.9					
(g) pH 8.6					
(h) pH 9.6			$\sim$		
(i) pH 10.8			$\sim$		
(j) pH 11.5			-		
(k) pH 12.7				(	
250	275	300 Magnetuio	₹ field (mT))	350	375

# Cu/BT (1:1) 50% MeOH 77K

			Magnetic field (m	nT)		
225	250	275	300	325	350	375
_				√ √		
	(l) pH 13.0			Min		
				°∕∕√		
	(k) pH 11.9			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
	U, p. 10.0			$\gamma$		
	(i) pH 10.3			$\sim$ $\sqrt{}$		
	(i) pH 9.1					
	(h) pH 8.4					
				Ŵ		
	(g) pH 7.6					
	(1) pi 0.7					
	(f) <b>pH 6 7</b>			$\mathcal{A}$		
	(e) pH 5.6				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
	(d) pH 4.5			$\sim$		
	(c) pH 3.2					
	() 1122			$\bigvee$		
	(b) pH 2.2					
				$\bigvee$		
	(a) pH 1.5					





#### **Supplementary Figures**

Figure S1. (a) Fluid solution EPR spectrum at room temperature of 5% glycerol solution of green tea containing 2 mM Cu(II) at pH 10.5, (b) simulation of the anisotropic component in (a), (c) residual spectrum after subtracting spectrum (b) from (a).

Figure S2. Dependence on pH of the fluid solution EPR spectra of 4 mM Cu(II) in aqueous green tea extract diluted 1:1 in methanol, (a) pH 1.4, (b) pH 2.1, (c) pH 3.7, (d) pH 4.6, (e) pH 5.3, (f) pH 6.8, (g) pH 7.3, (h) pH 8.7, (i) pH 9.8, (j) pH 10.5, (k) pH 11.4, (l) pH 12.8

Figure S3. Dependence on pH of the fluid solution EPR spectra of 4 mM Cu(II) in aqueous green tea extract diluted 1:5 in (1:1) aqueous methanol, (a) pH 0.9, (b) pH 2.8, (c) pH 3.7, (d) pH 4.9, (e) pH 6.0, (f) pH 6.4, (g) pH 7.9, (h) pH 8.6, (i) pH 9.65, (j) pH 10.8, (k) pH 11.5, (l) pH 12.7.

Figure S4. Dependence on pH of the fluid solution EPR spectra 4 mM Cu(II) in aqueous Pu'er tea extract diluted 1:1 in methanol, (a) pH 1.5, (b) pH 2.2, (c) pH 3.2, (d) pH 4.5, (e) pH 5.6, (f) pH 6.7, (g) pH 7.6, (h) pH 8.4, (i) pH 9.1, (j) pH 10.3, (k) pH 11.9, (l) pH 13.0.

Figure S5. Dependence on pH of the fluid solution EPR spectra of 4 mM Cu(II) in aqueous Pu'er tea extract diluted 1:5 in (1:1) aqueous methanol, (a) pH 1.4, (b) pH 2.0, (c) pH 2.6, (d) pH 4.4, (e) pH 5.5, (f) pH 7.0, (g) pH 7.6, (h) pH 8.3, (i) pH 9.4, (j) pH 10.1, (k) pH 10.8, (l) pH 11.4, (m) pH 13.0

Figure S6. Dependence on pH of the EPR spectra at 77K of 4 mM Cu(II) in aqueous green tea extract diluted 1:1 in methanol, (a) (a) pH 1.4, (b) pH 2.1, (c) pH 3.7, (d) pH 4.6, (e) pH 5.3, (f) pH 6.8, (g) pH 7.3, (h) pH 8.7, (i) pH 9.8, (j) pH 10.5, (k) pH 11.4, (l) pH 12.8

Figure S7. Dependence on pH of the EPR spectra at 77K of 4 mM Cu(II) in aqueous green tea extract diluted 1:5 in (1:1) aqueous methanol, (a) pH 0.94, (b) pH 2.80, (c) pH 3.67, (d) pH 4.92, (e) pH 6.02, (f) pH 7.87, (g) pH 8.57, (h) pH 9.55, (i) pH 10.80, (j) pH 11.51, (k) pH 12.74.

Figure S8. Dependence on pH of the EPR spectra at 77K of 4 mM Cu(II) in aqueous Pu'er tea extract diluted 1:1 in methanol, (a) pH 1.5, (b) pH 2.2, (c) pH 3.2, (d) pH 4.5, (e) pH 5.6, (f) pH 6.7, (g) pH 7.6, (h) pH 8.4, (i) pH 9.1, (j) pH 10.3, (k) pH 11.9, (l) pH 13.0.

Figure S9. Dependence on pH of the EPR spectra at 77K of 4 mM Cu(II) in aqueous Pu'er tea extract diluted 1:5 in (1:1) aqueous methanol, (a) pH 1.4, (b) pH 2.0, (c) pH 2.6, (d) pH 4.4, (e) pH 5.5, (f) pH 7.0, (g) pH 7.6, (h) pH 8.3, (i) pH 9.4, (j) pH 10.1, (k) pH 11.4, (m) pH 13.0

Figure S10.  $2^{nd}$  derivative recording of the  63 Cu *bis* complex with the anine in NaOD at pH 10