Electronic Supplementary Information

Hybrid Charge Transfer Complex–Silver Nanoparticles for Portable Colorimetric and Fluorescent Detection of Aflatoxin B1 in Contaminated Peanuts

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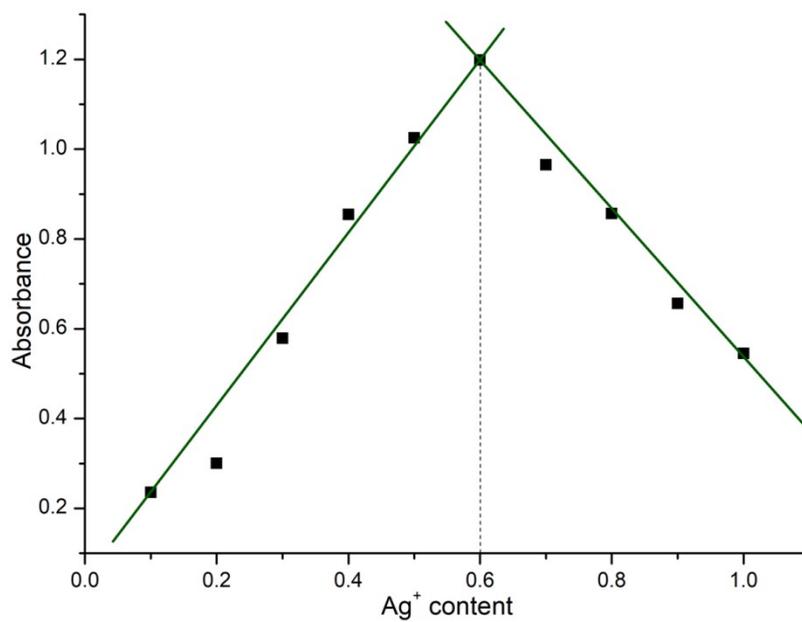[c]Department of Chemistry, College of Science, Taif University, P.O. Box 11099, Taif 21944, Saudi Arabia
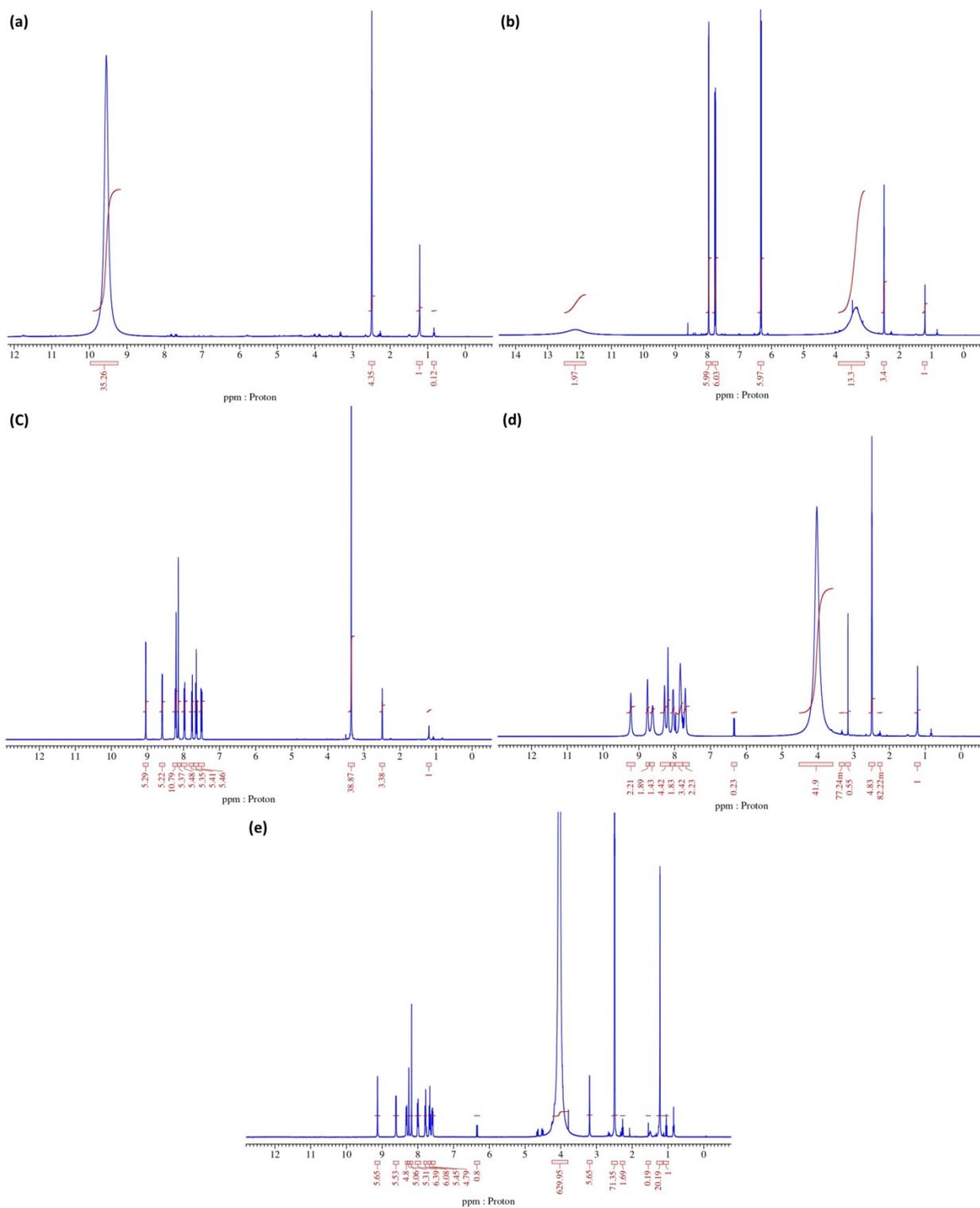
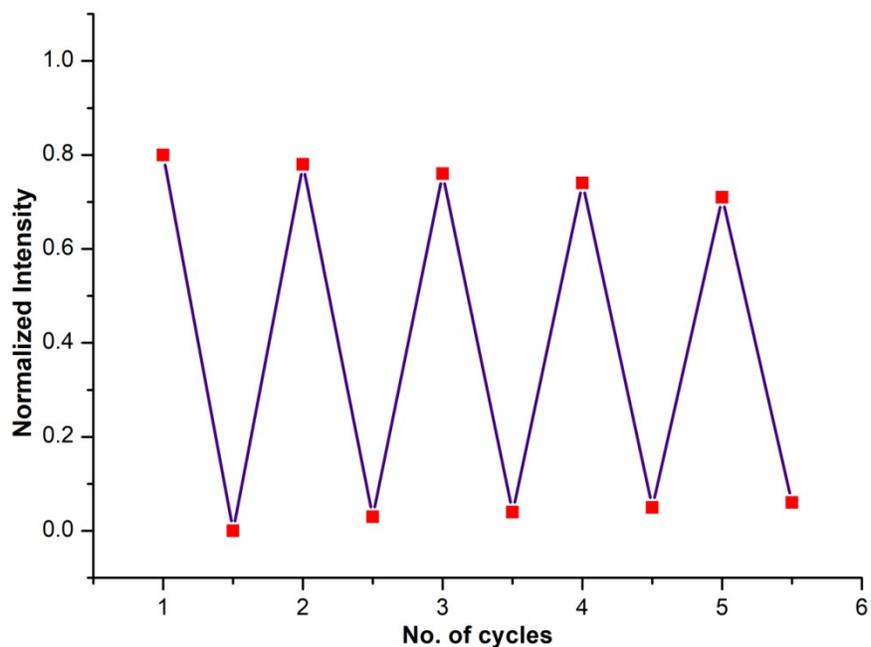**Fig. S1.** ^{1}H NMR of **(a)** ChA, **(b)** FA, **(c)** BTy, **(d)** CTC, and **(e)** CTAg recorded in DMSO-d$_6$.
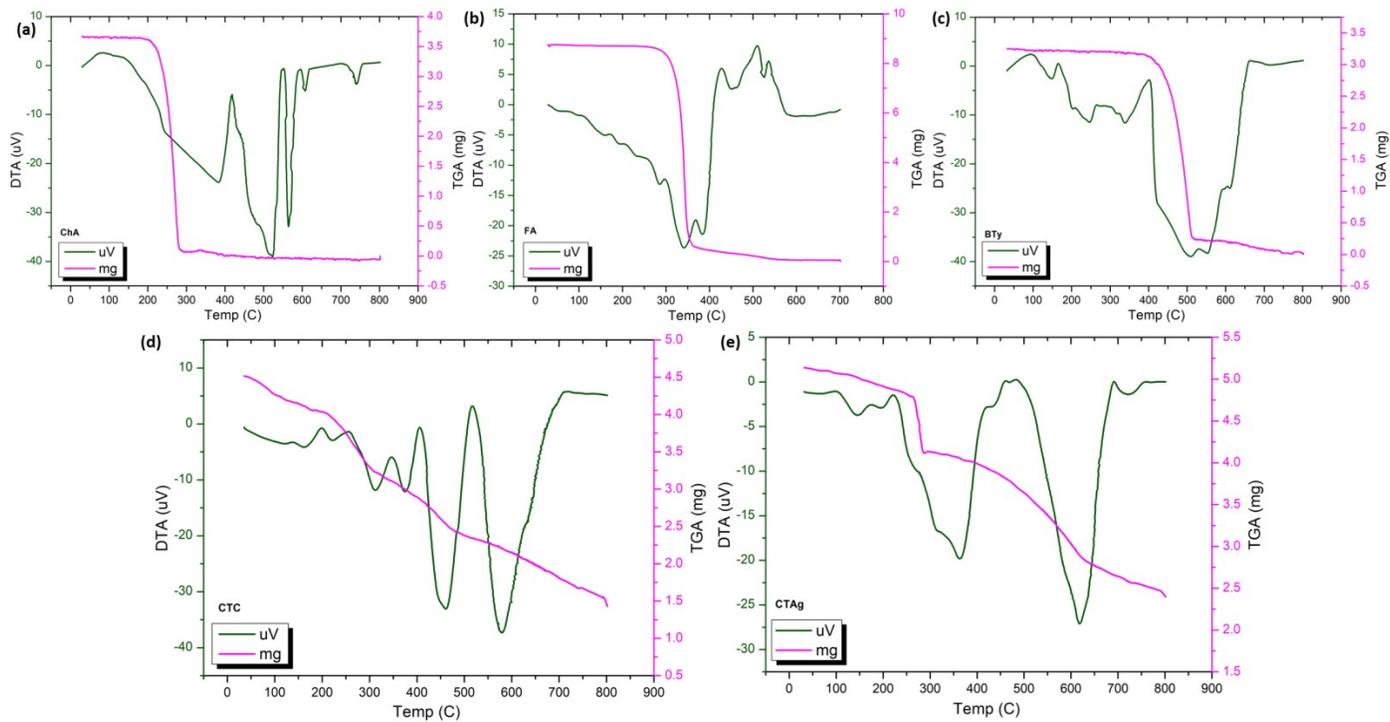
Fig. S2. TGA-DTA curves for **(a)** ChA; **(b)** FA; **(c)** BTy; **(d)** CTC; and **(e)** CTAg.

Fig. S3. Job's plot for the CTC-Ag$^+$ system.

Fig. S4. Recyclability of CTAg.

Table S1. Elemental percentages (wt%) for CTC and CTAg.

Element	CTC wt%	CTAg wt%
C	69.63	46.23
O	19.18	18.66
Cl	8.27	11.84
N	2.92	1.24
Ag	-	22.03

Table S2. Calculation of standard deviation for CTAg

Blank Readings	FL Intensity of CTAg
Reading 1	1226.57
Reading 2	1227.98
Reading 3	1231.01
Reading 4	1232.52
Reading 5	1225.38
Standard Deviation(σ)	**3.00024499**

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Table S3. Comparison of reported AFB1 Sensors and the present CTAg Sensor.

S.No.	Sensing Platform / Material	Detection Method	Detection Limit	Sample Matrix	Reference
1.	Aptamer–MIP with carbon dots & MOF	Fluorescence + Colorimetric	37.0 pg/mL (fluorescence channel) and 13.0 pg/mL (colorimetric channel)	Edible oil	1
2.	Competitive chemiluminescence aptamer	Chemiluminescence	0.09 ng/mL	Wheat	2
3.	Electrochemical aptamer + HCR amplification	Electrochemical	2.84 fg/mL	Corn, medicinal herbs	3
4.	DNAzyme-based colorimetric aptasensor	Colorimetric	3.2 pg/mL	Food samples (general)	4
5.	Smartphone-assisted AuNP aptamer assay	Colorimetric	0.08 ng/g (~80 pg/g)	Beans	5
6.	CTAg (charge-transfer nanomaterial)	Fluorescence + Colorimetric	0.1407 ppb	Peanut	This Work

References

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