SUPPORTING INFORMATION

A smartphone-integrated colorimetric sensing platform for the detection of tannic acid in beverages using folic acid functionalized copper nanoclusters nanozyme.

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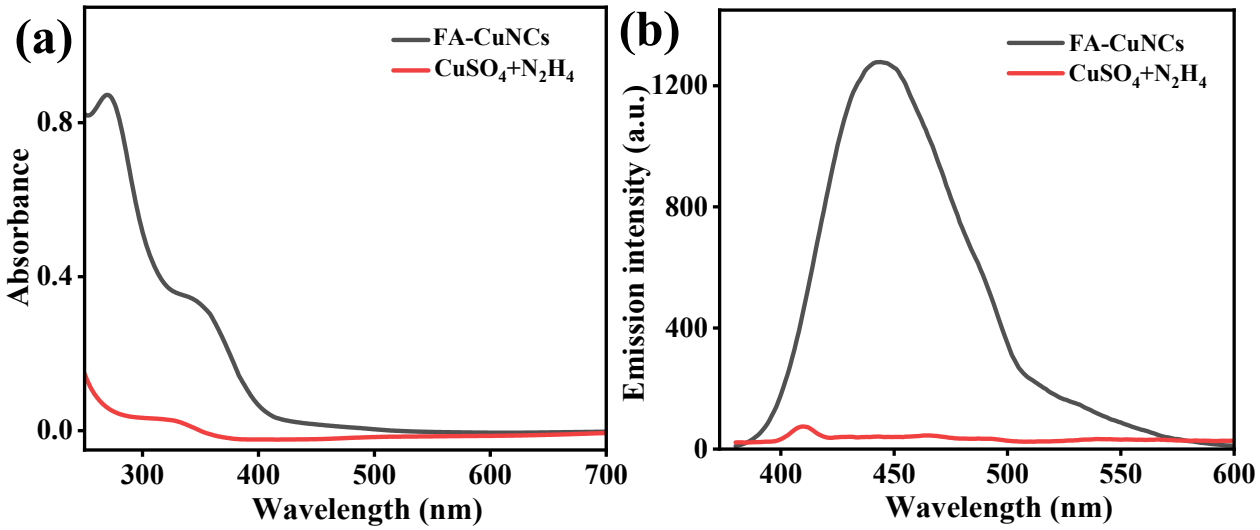

Fig. S1 (a) UV-visible spectra of CuNCs in absence and presence of FA and (b) Emission spectra of CuNCs in the absence and presence of FA.

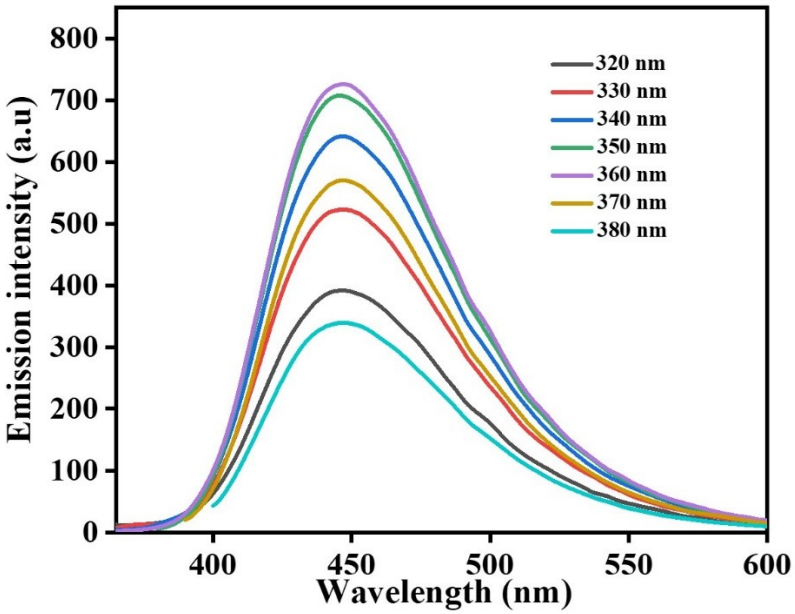

Fig. S2. Emission spectra of FA-CuNCs at different excitation wavelengths (λ_{exi} = 320, 330,340, 350,360, 370, 380 nm).

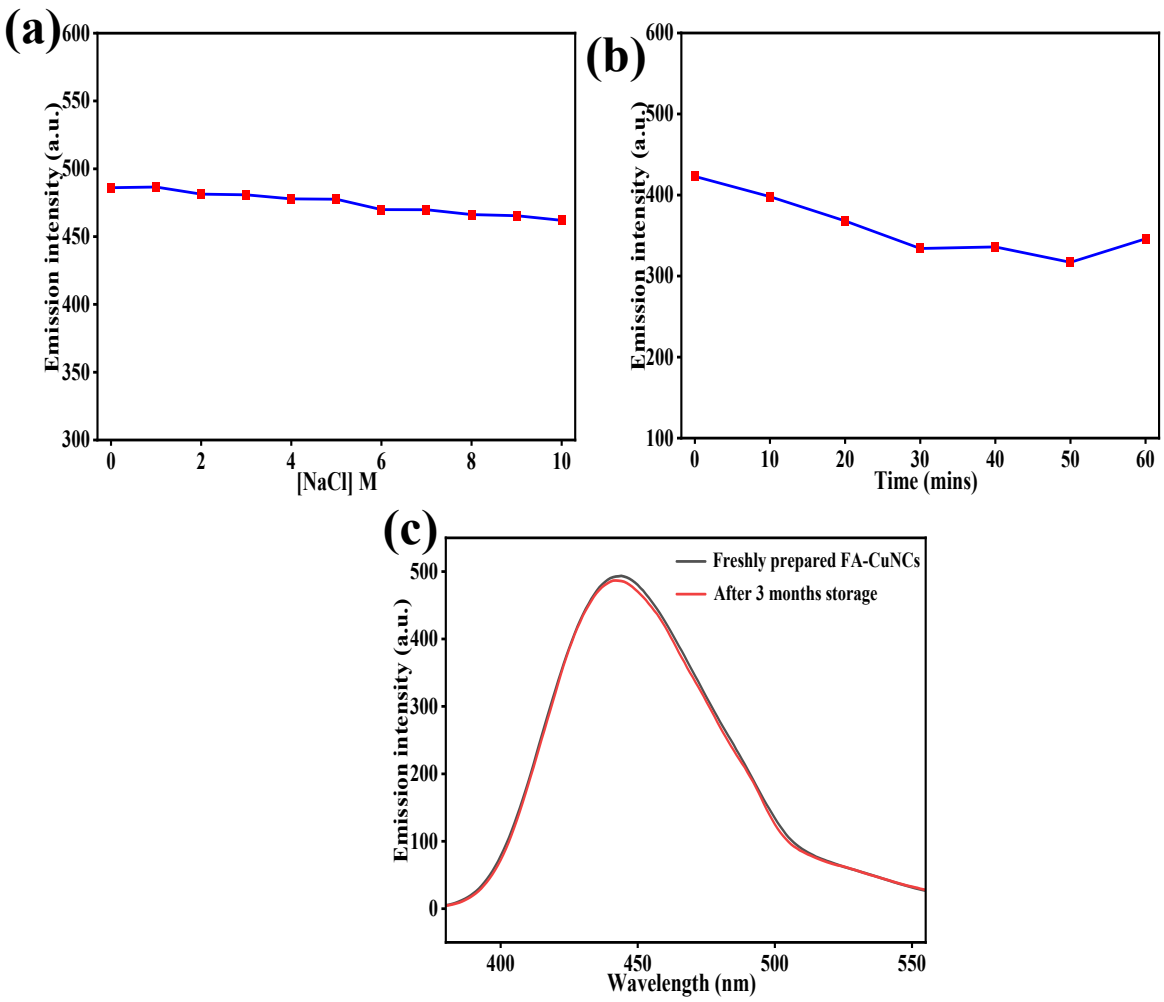

Fig. S3. Effect of FA-CuNCs upon (a) Different ionic strengths, (b) Different UV- irradiation time and (c) Storage.

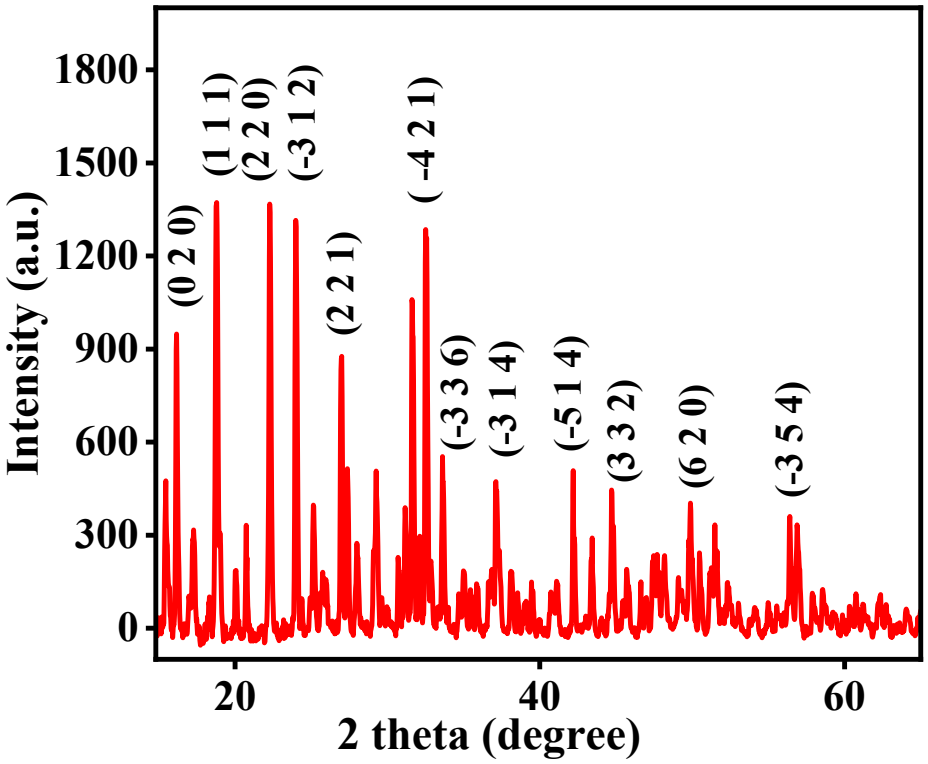

Fig. S4. XRD pattern of FA-CuNCs

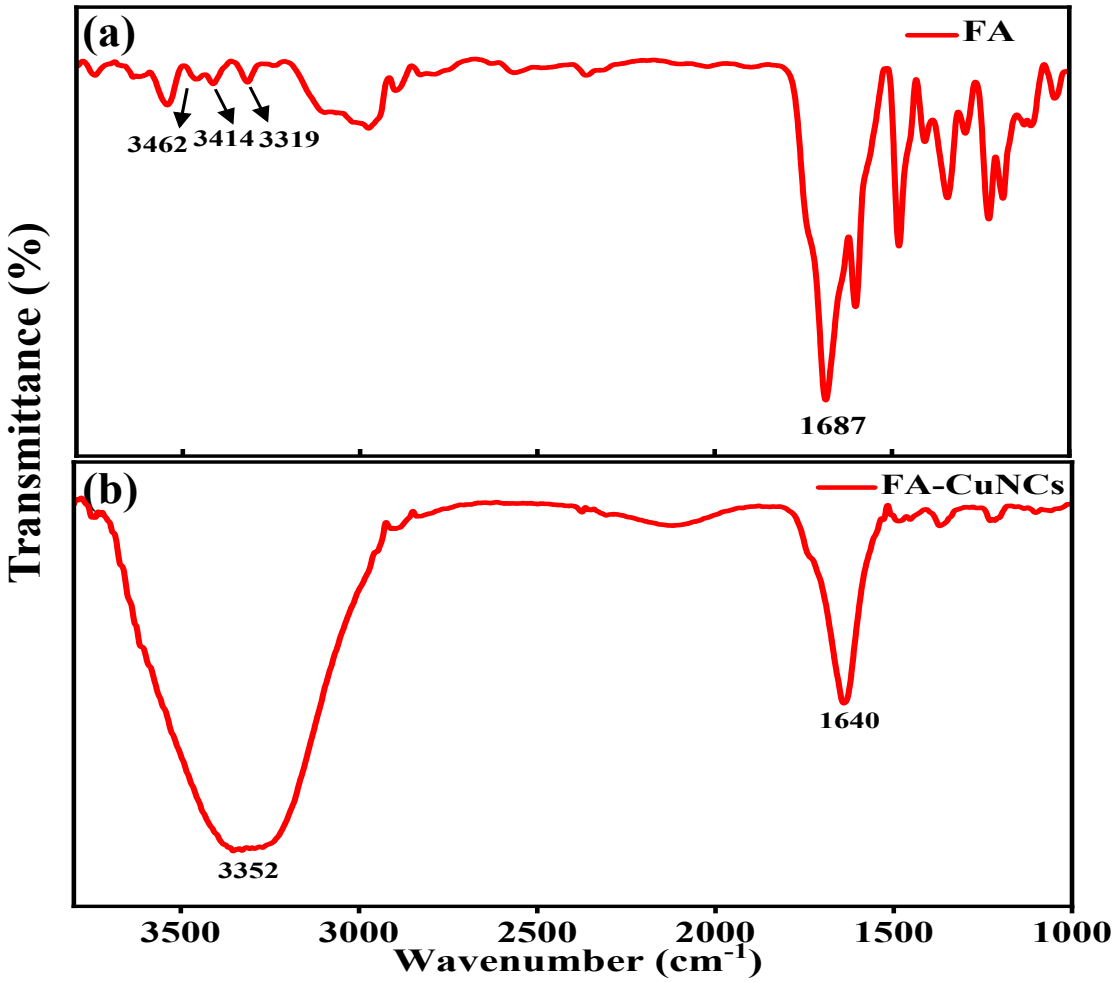

Fig. S5. FT-IR spectra of (a) FA and (b) FA-CuNCs.

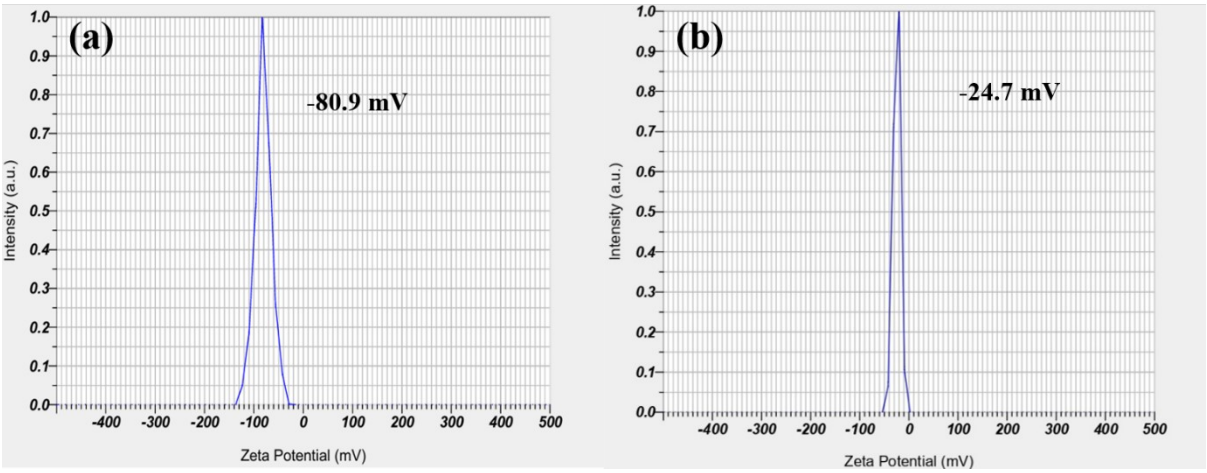

Fig. S6. Zeta-potential analysis of (a) FA and (b) FA-CuNCs.

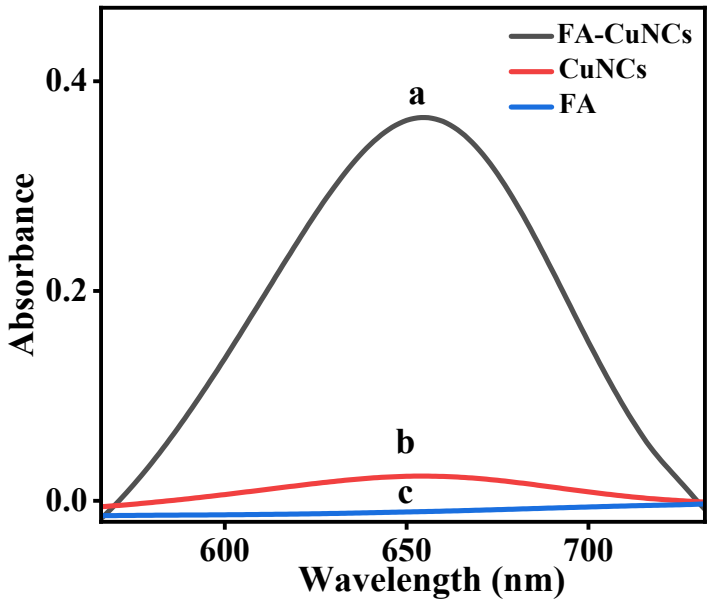

Fig S7. Peroxidase-like activity of (a) FA-CuNCs, (b) CuNCs and (c) FA.

Table S1 Comparision of kinetic parameters of FA-CuNCs with other peroxidase-like nanomaterials.

S.No	Nanozymes	TMB		H_2O_2		References
		K_m (mM)	V_{max} ($\times 10^{-8}$ Ms^{-1})	K_m (mM)	V_{max} ($\times 10^{-8}$ Ms^{-1})	
1.	Natural HRP	0.43	10.00	3.70	8.71	[1]
2.	$CoTe_2$	1.40	25.90	80.30	21.00	[2]
3.	F-YbFe-PBA	0.16	6.21	16.47	9.60	[3]
4.	Os Ru NPs	0.36	337.29	2.67	208.37	[4]
5.	Cu-Ti3C2 MQDs	0.60	3.47	3.17	27.57	[5]
6.	**FA-CuNCs**	**0.094**	**0.49**	**16.30**	**2.53**	**Present work**

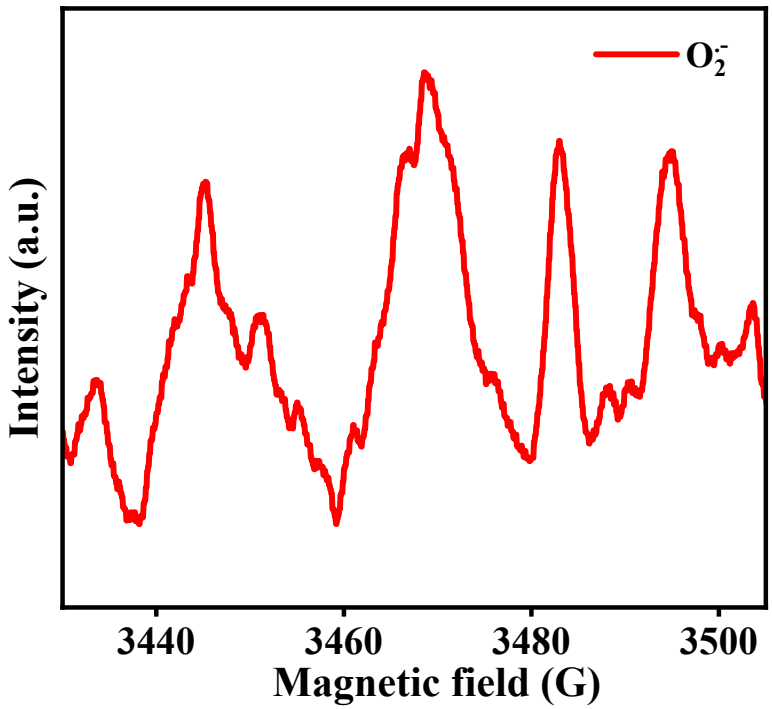

Fig. S8. ESR spectrum of $O_2^{\bullet-}$ radicals produced by FA-CuNCs.

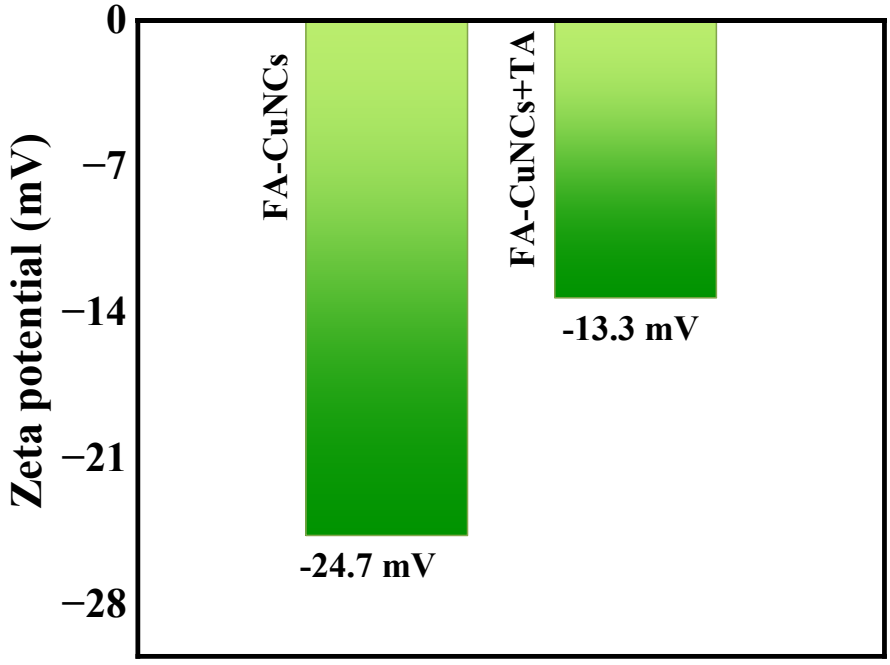

Fig. S9. Zeta potential of FA-CuNCs in the absence and presence of TA.

Table S2. Comparison between the performance of various nanomaterials reported as TA sensors.

S.No	Materials	Methods	Linear range (μM)	LOD (nM)	Reference
1.	Fe-HHTP	Colorimetric	0.50-100.00	500.00	[6]
2.	Fe-N-C MFs	Colorimetric	0.20-50.00	150.00	[7]
3.	FeCe/NC	Colorimetric	1.00-6.00	260.00	[8]
4.	Au@CuO	Colorimetric	0.30-2.40	250.00	[9]
5.	AuBPs	Colorimetric	1.25-37.50	860.00	[10]
6.	**FA-CuNCs**	**Colorimetric**	**0.20-4.00**	**88.50**	**Present work**

References

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