Supporting Information

Mildly acidic pH and room temperature triggered peroxidase - mimics of rGOCu3(OH)2(MoO4)2 cuboidal nanostructures: An effective colorimetric detection of neurotransmitter dopamine in blood serum and urine samples

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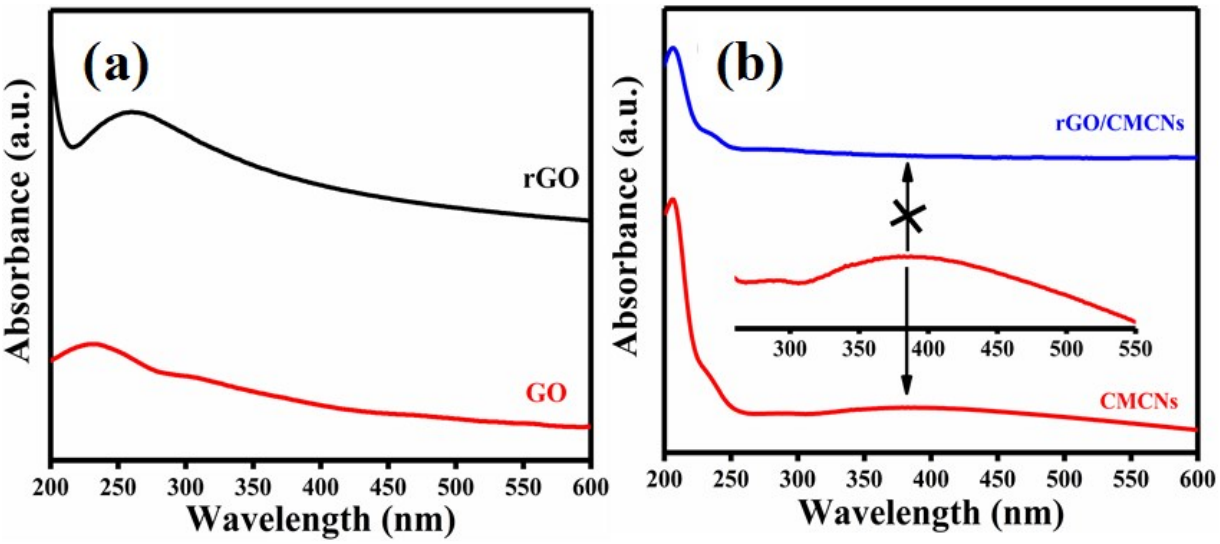


Fig. S1 UV/Vis. spectroscopy analysis spectra of GO, rGO, CMCNs and rGO/CMCNs (a) UV/Vis. spectra of GO and rGO. (b) UV/Vis. spectra of CMCNs and rGO/CMCNs.

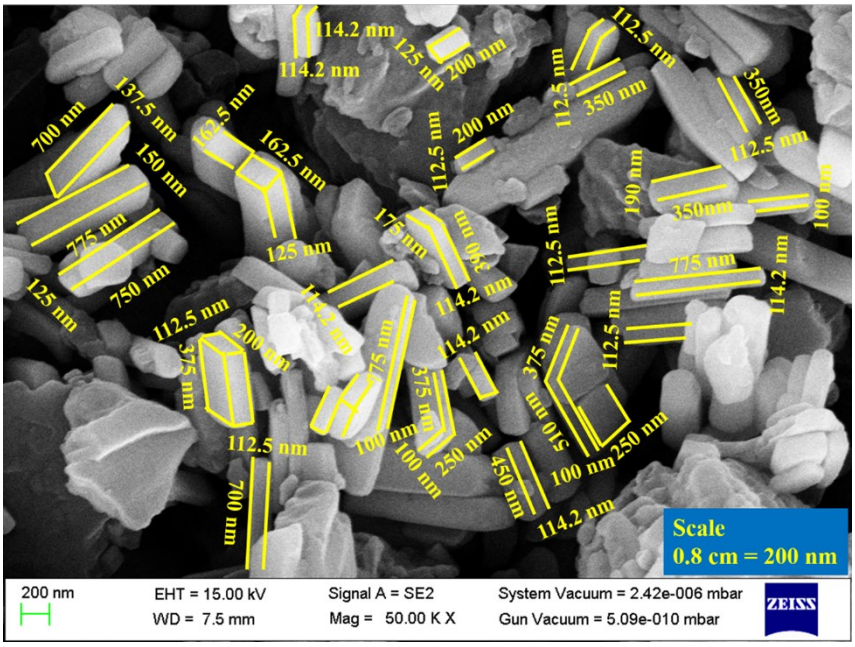


Fig. S2 FE-SEM image of CMCNs with manually calculated dimensional size.

Table S1. Chemical composition of CMCNs from EDAX pattern

Element	Atomic No.	Series	Weight %
O	8	K	33.59
Cu	29	L	28.05
Mo	42	L	38.36
Total			100

Table S2. Chemical composition of rGO/CMCNs nanocomposites from EDAX pattern

Element	Atomic No.	Series	Weight %
C	6	K	69.81
O	8	K	22.62
Mo	42	L	06.93
Cu	29	K	0.64
Total			100

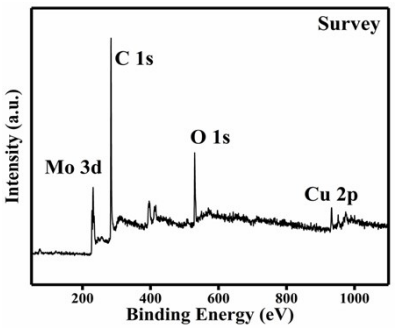


Fig. S3. XPS full survey scan spectra of rGO/CMCNs nanocomposite. The presence of Mo 3d, C 1s, O 1s and Cu 2p spin orbit core - levels confirm the formation of rGO/CMCNs nanocomposite.

BET Analysis

Nitrogen adsorption-desorption for the calculation of surface is shown in supplementary file (**Fig. S4**). BET surface area of rGO/CMCNs (2:1) nanocomposite was found to be 4.133 m^2/g which could be due the encapsulation of rGO on CMCNs nanostructures. The pore diameter and pore volume of rGO/CMCNs (2:1) were found to be 1.4301 nm and 0.0117 cm^3/g respectively.

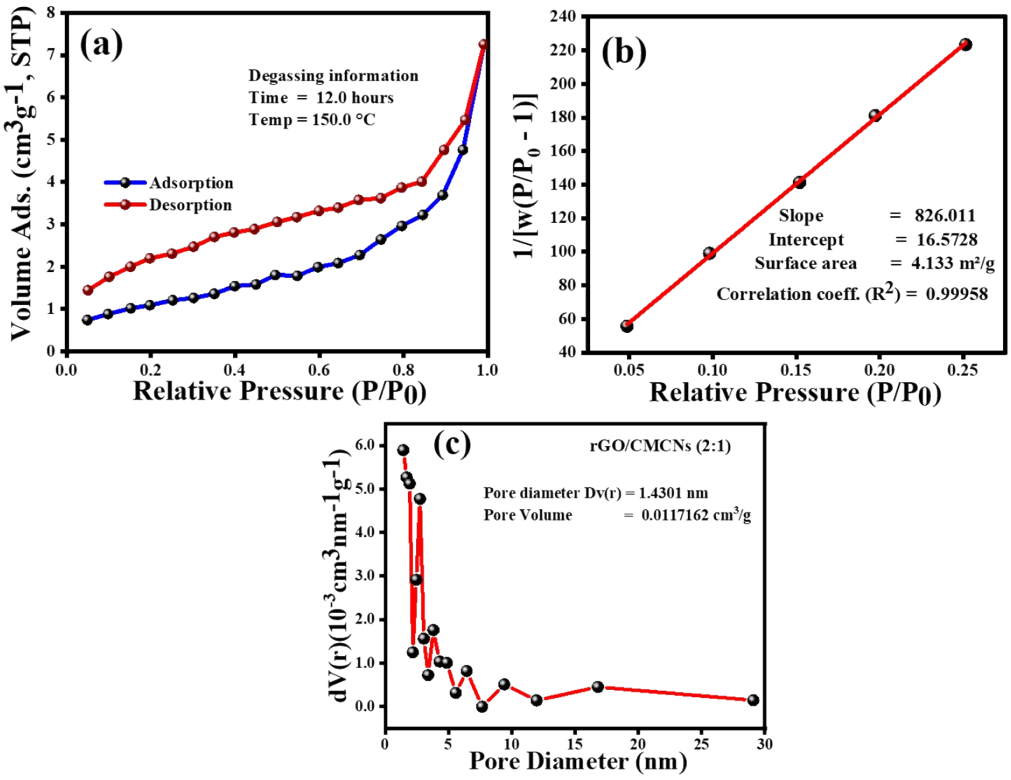


Fig. S4. BET analysis of rGO/CMCNs (2:1). (a) Adsorption -desorption isotherm plot. (b) BET plot in relative pressure range 0.05 – 0.25. (c) Pore size distribution plot.

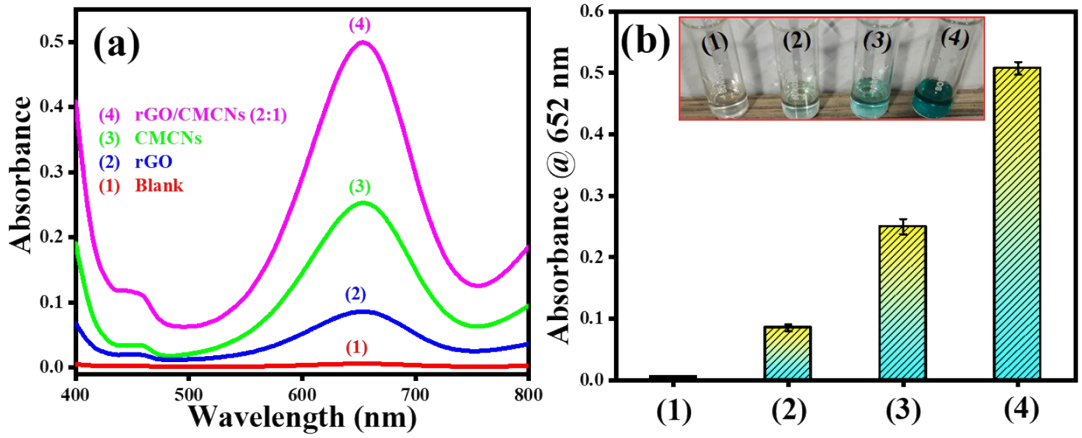


Fig S5. Enzyme – mimicking activity comparison of rGO, CMCNs and rGO/CMCNs (2:1) catalysts. (a) UV/Vis. spectroscopy analysis of different reaction systems: (1) TMB+H_2O_2, (2) rGO+TMB+H_2O_2, (3) CMCNs+TMB+H_2O_2, (4) rGO/CMCNs (2:1) +TMB+H_2O_2. (b) Absorbance at 652 nm for each reaction system.

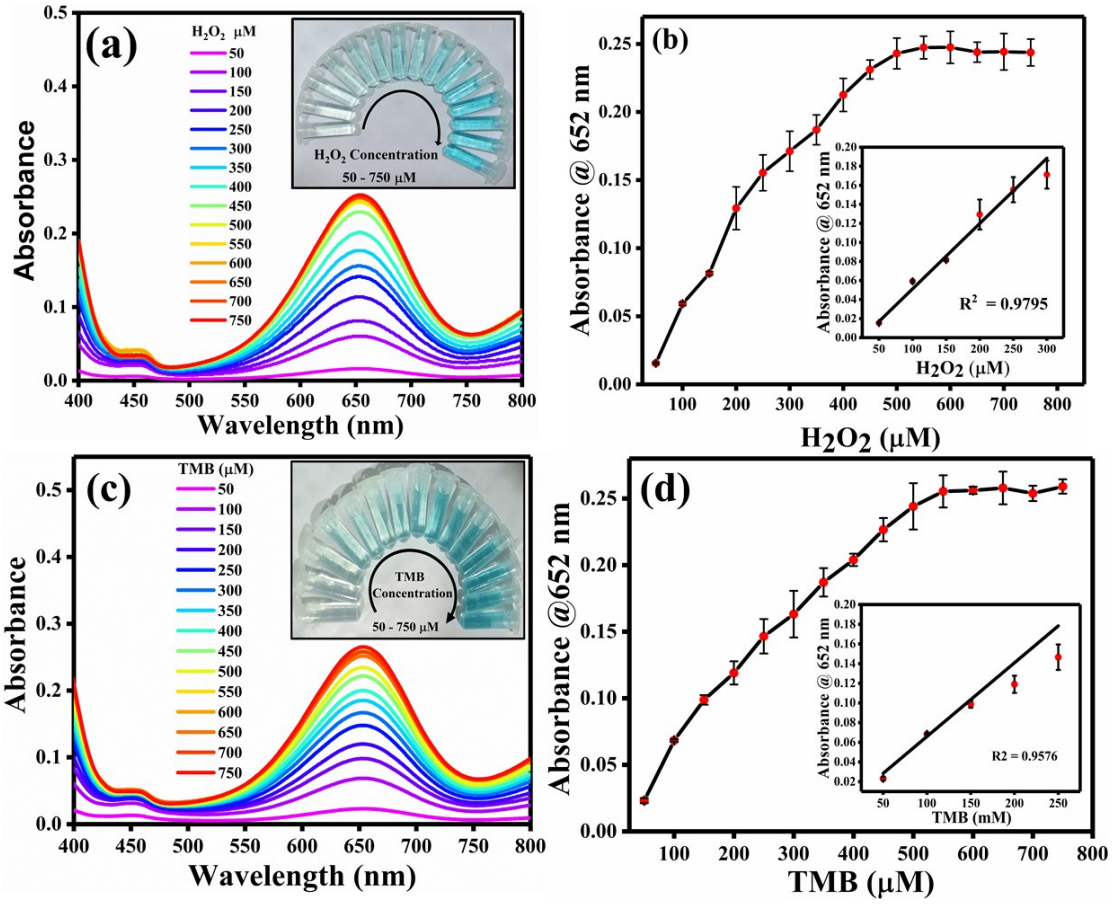


Fig. S6 UV/Visible spectra of fixed concentration of TMB and varying concentration of H_2O_2 using CMCNs catalyst (a) and vice - versa (c). Absorbance change at 652 nm for H_2O_2 and TMB (b and d respectively). Inset of (a) and (c) represents the color change with increasing concentration of H_2O_2 and TMB respectively.

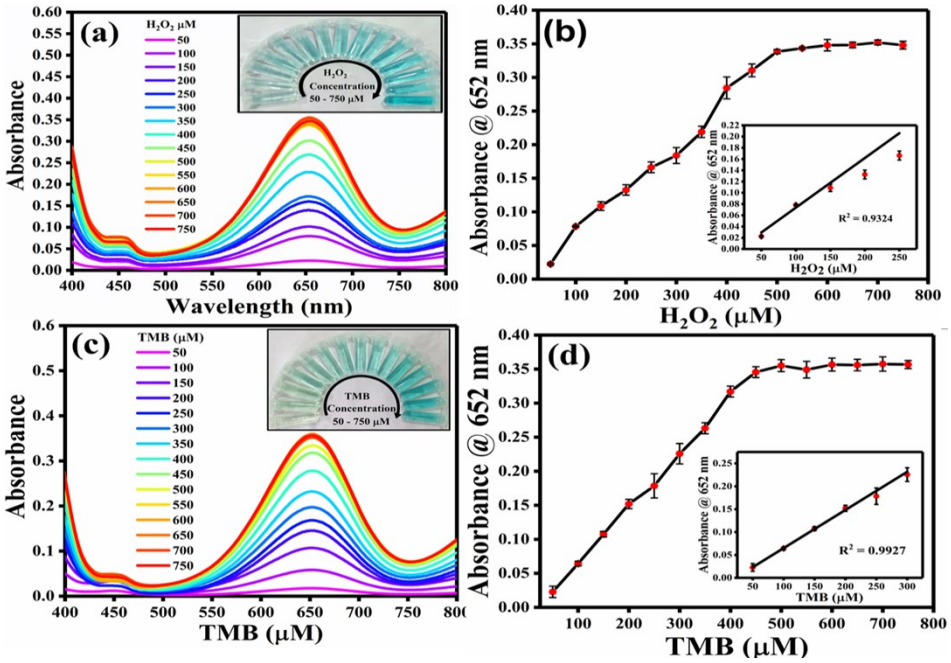
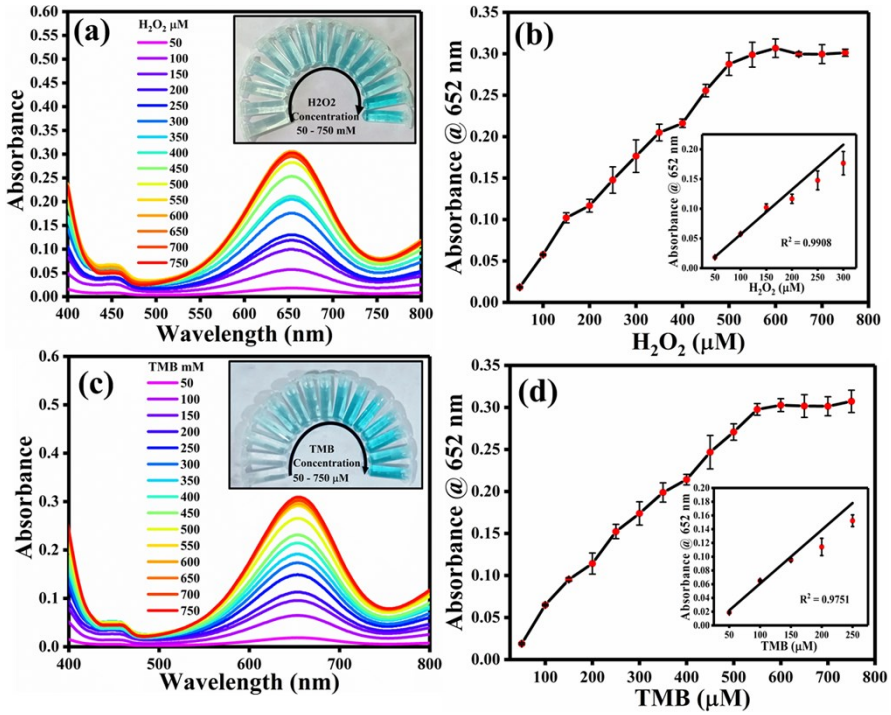


Fig. S7 UV/Visible spectra of fixed concentration of TMB and varying concentration of H_2O_2 using rGO/CMCNs (1:1) catalyst (a) and vice - versa (c). Absorbance change at 652 nm for H_2O_2 and TMB (b and d respectively). Inset of (a) and (c) represents the color change with



increasing concentration of H_2O_2 and TMB respectively.

Fig. S8 UV/Visible spectra of fixed concentration of TMB and varying concentration of H_2O_2 using rGO/CMCNs (1:2) catalyst (a) and vice - versa (c). Absorbance change at 652 nm for

H_2O_2 and TMB (b and d respectively). Inset of (a) and (c) represents the color change with increasing concentration of H_2O_2 and TMB respectively.

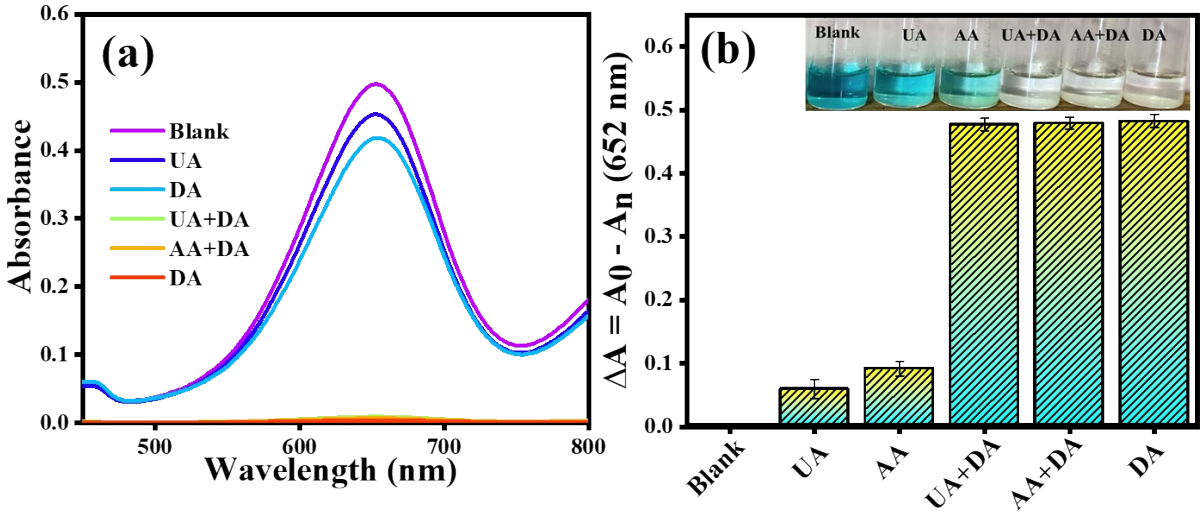


Fig. S9 Effect of uric acid and ascorbic acid on the peroxidase mimicking activity of rGO/CMCNs (2:1) towards DA detection. (a) UV analysis various reaction systems. (b) Change in absorbance at 652 nm. Inset shows the digital photograph of various reaction system.

Effect of uric acid and ascorbic acid on the peroxidase mimicking activity of rGO/CMCNs (2:1) towards DA detection was investigated under all the optimal conditions. The concentration of DA was 100 µM whereas for both UA and AA, the concentration was 200 µM. as shown in **Fig. S9**, very less color change was recorded for UA and AA. When DA was added in the reaction system, a significant color change was recorded. Results indicate the good specificity for DA detection.