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Electronic Supplementary Material

Fabrication of $Ti_3C_2T_x$ modified glassy carbon electrode for sensitive electrochemical detection of quercetin

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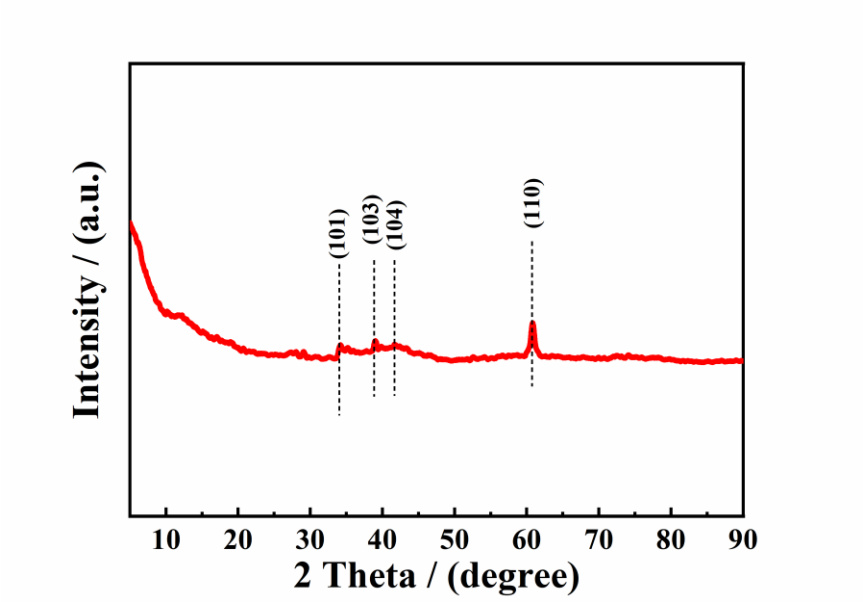

Fig. S1. XRD pattern of $Ti_3C_2T_x$.

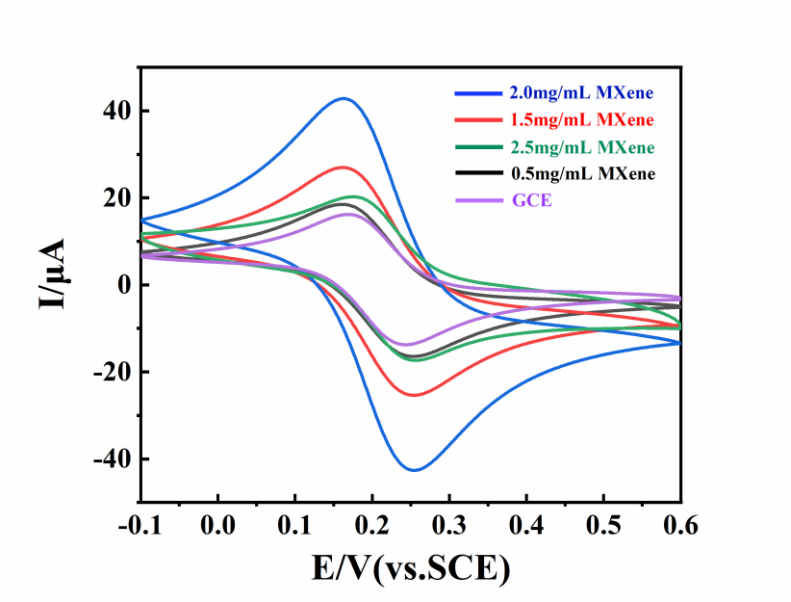

Fig. S2. Cyclic voltammograms of different concentration MXene modified GCE in a 0.1 M $[Fe(CN)_6]^{3-/4-}$ and 1.0 M KCl mixture with scan rate of 0.1 V/s. The MXene concentrations from inside to outside were 0 mg/mL, 0.5 mg/mL, 2.5 mg/mL, 1.5 mg/mL, 2.0 mg/mL .

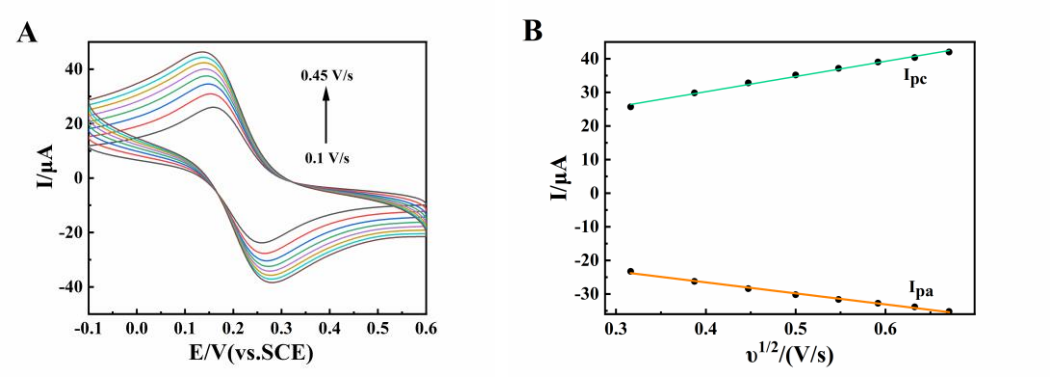

Fig. S3. (A) Cyclic voltammetric curves of MXene/GCE at different scan rates in a 0.1 M $[Fe(CN)_6]^{3-/4-}$ and 1.0 M KCl mixture (a→n: 0.1, 0.15, 0.2, 0.25, 0.3, 0.35, 0.4, 0.45 V/s); (B) Linear relationship between redox peak current and $\upsilon^{1/2}$.

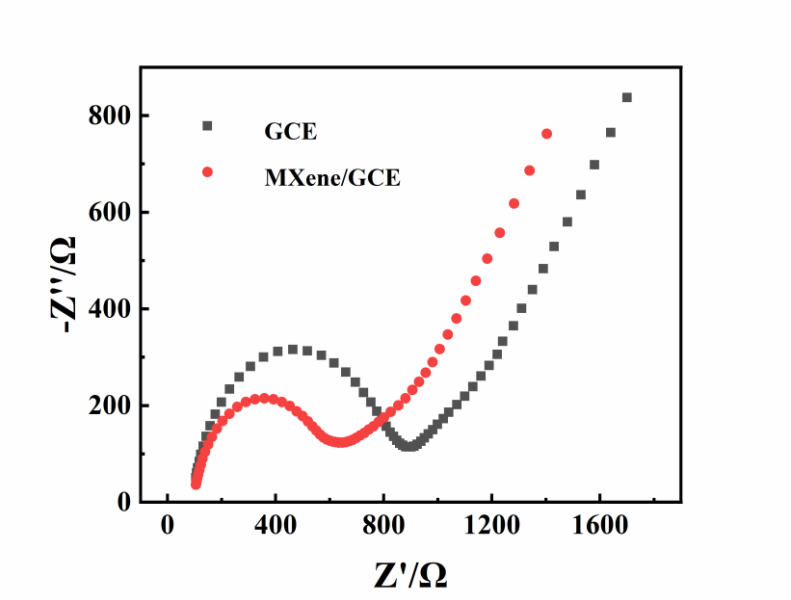

Fig. S4. EIS of GCE and MXene/GCE with amplitude of 5 mV and scanning frequency from 100 kHz to 0.1 Hz.

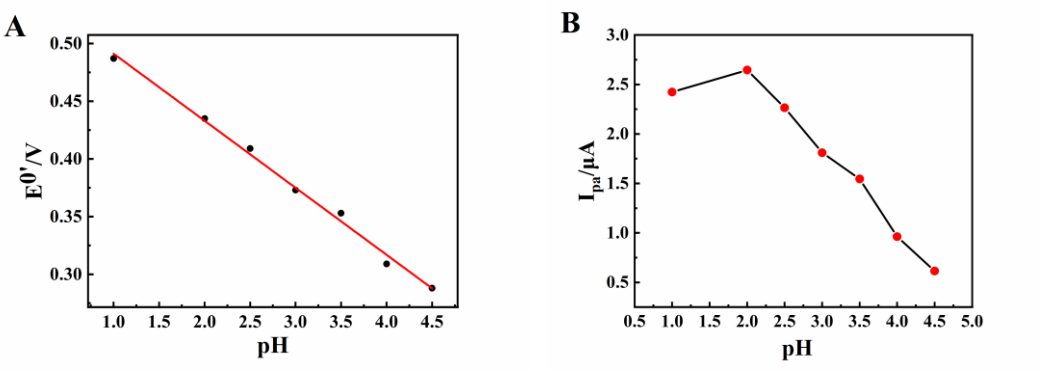

Fig. S5. (A) Linear relationship of $E^{0'}$ and pH in different pH PBS and (B) The relationship curve between I_{pa} and pH for 100 μM quercetin.

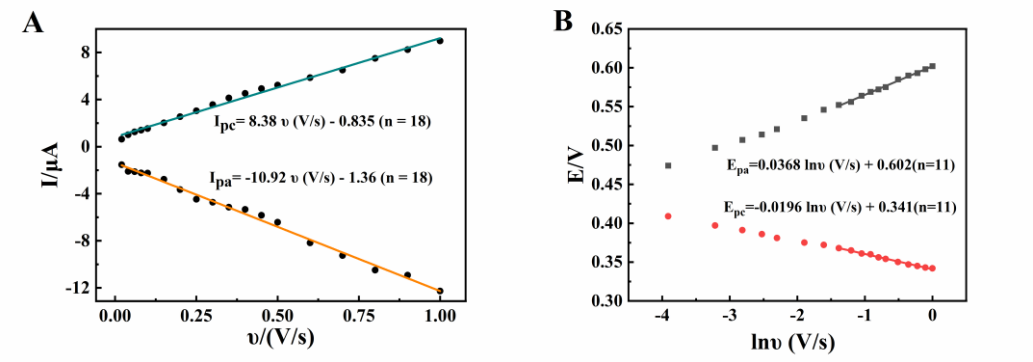

Fig. S6. Linear relationship between (A) the redox peak currents versus scan rates (υ) and (B) the redox peak potentials versus lnυ of MXene/GCE in 100 μM quercetin solution.

Table S1. Electrochemical parameters of 100 μM quercetin on different modified electrodes at pH 2.0 PBS

Electrode	I_{pa}/μA	I_{pc}/μA	E_{pa}/V	E_{pc}/V	ΔE/mV	$E^{0'}$/V
GCE	1.651	1.224	0.512	0.364	148	0.438
MXene/GCE	2.732	1.566	0.476	0.409	67	0.443

* I_{pa} represents the oxidation peak current, I_{pc} represents the reduction peak current, E_{pa} represents the oxidation peak potential, E_{pc} represents the reduction peak potential, ΔE represents peak-to-peak separation, $E^{0'}$ represents the formal potential.