

Fig. S1 Scanning electron microscope of the original tea waste and the as-prepared HMO-TW

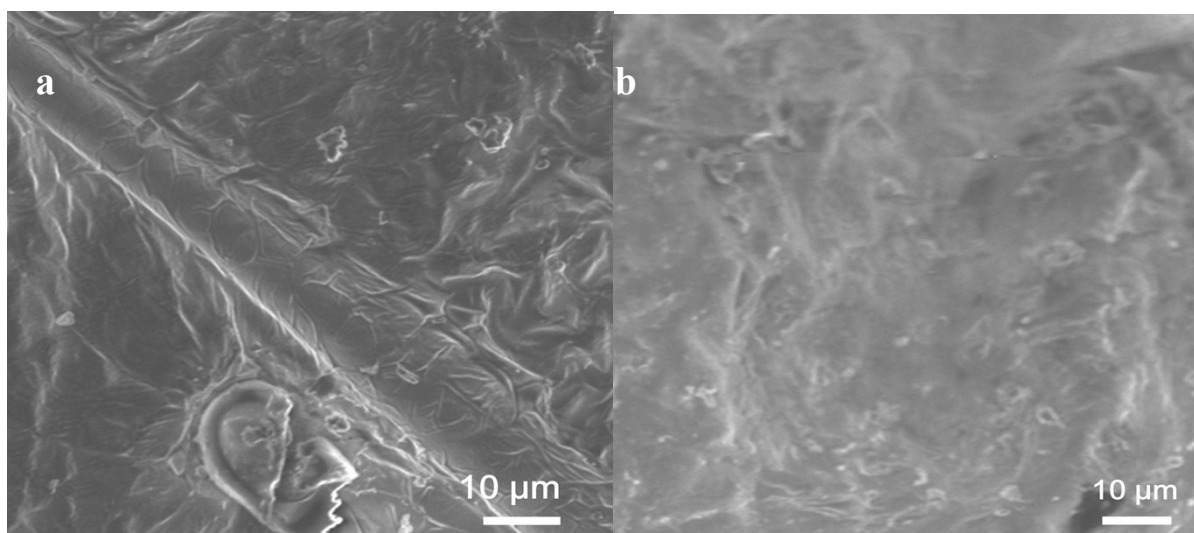


Fig. S2 XRD pattern of the prepared HMO-TW in current research

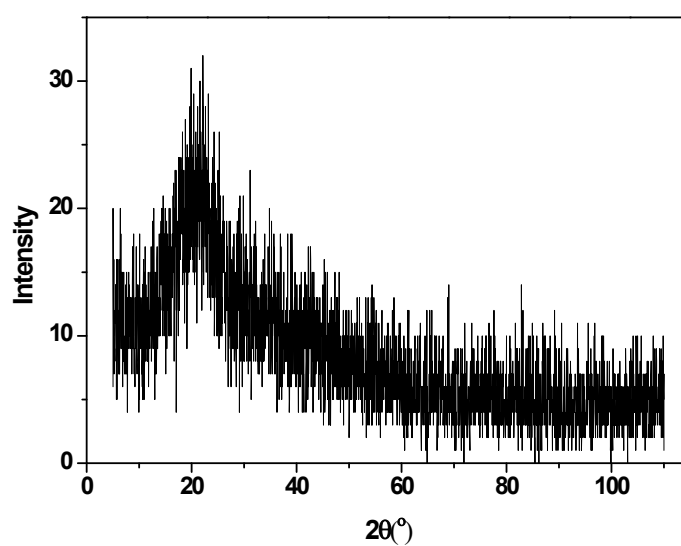
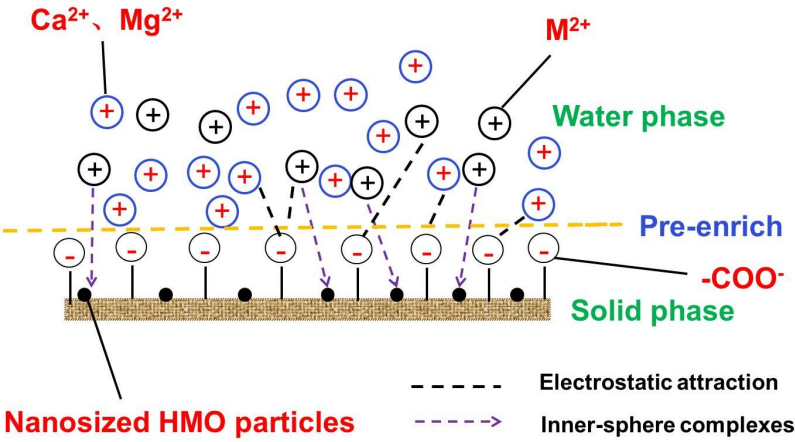


Fig.S3 Schematic illustration of Donnan effect caused by functional groups of host tea waste



**Donnan effect**

Fig. S4 Effect of initial metals concentration on heavy metals removal by HMO-TW (Black lines refers to sorption capacities trend and red lines refers to removal trend). Conditions: Sorbent dose = 0.4 g L<sup>-1</sup>; pH = 5.5±0.2; Temperature = 298 K.

