Supporting Information

Metal Chelation Enables High Performance Tea Polyphenol Electrodes for Lithium-ion Batteries

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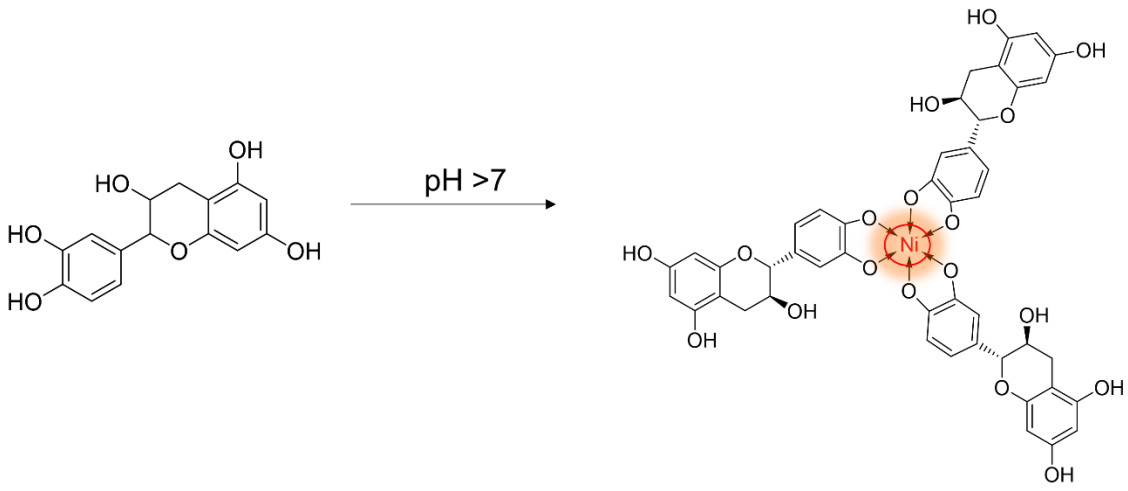

Figure S1. The synthesis of TP-Ni compound.

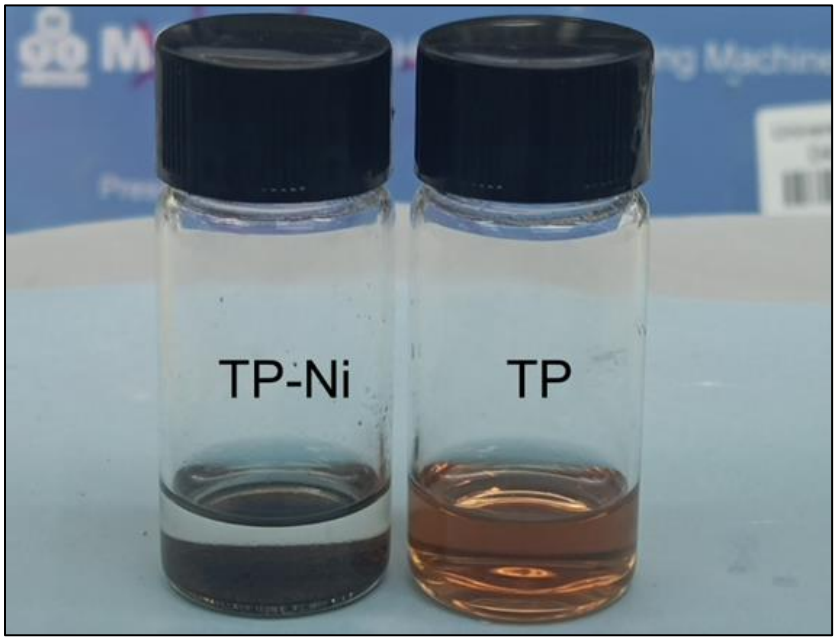

Figure S2. The solubility comparison of TP and TP-Ni.

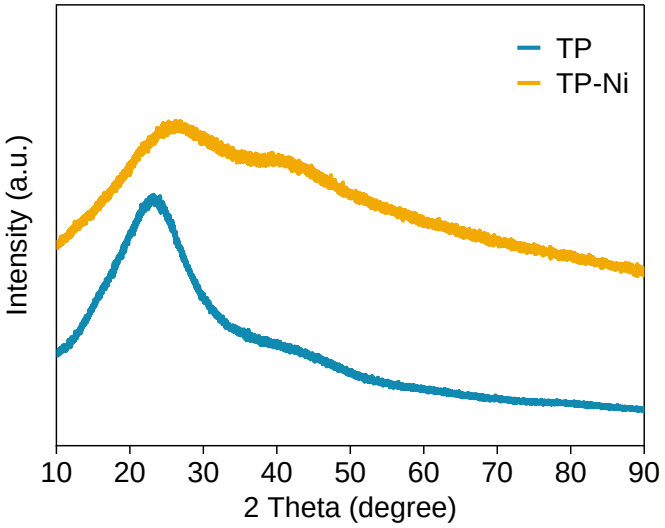

Figure S3. XRD profile of TP and TP-Ni.

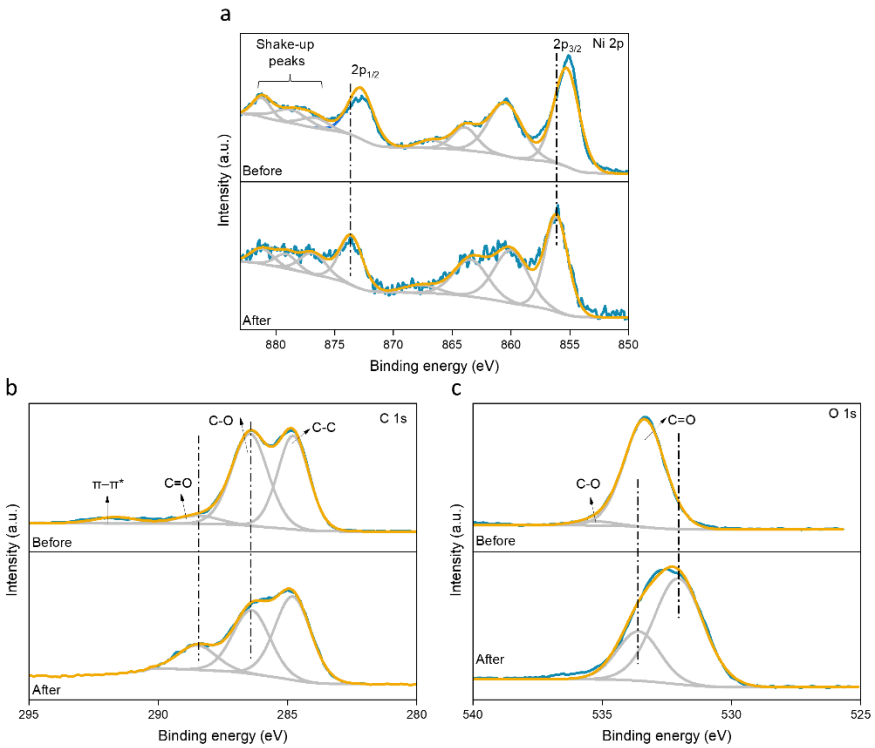

Figure S4. XPS spectra before and after coordination of (a) Ni 2p, (b) C 1s, (c) O 1s.

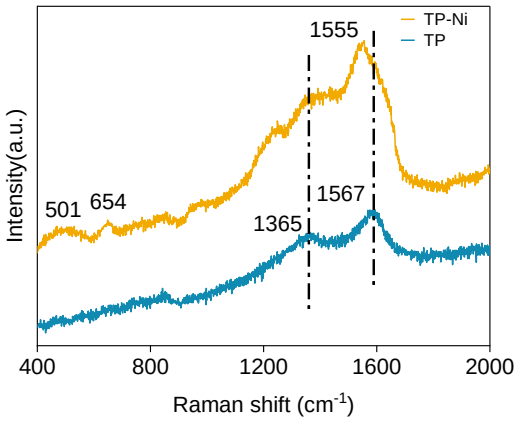

Figure S5. The Raman spectrum of TP and TP-Ni.

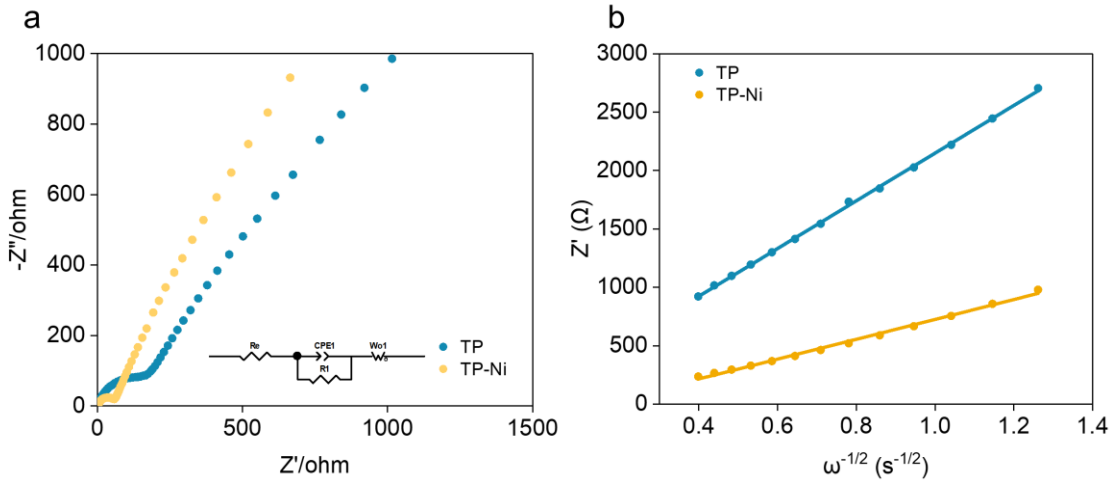

Figure S6 (a) Nyquist plot of EIS spectra, (b) relationship between real part of impedance versus $\omega^{-0.5}$ in the TP and TP-Ni cells.

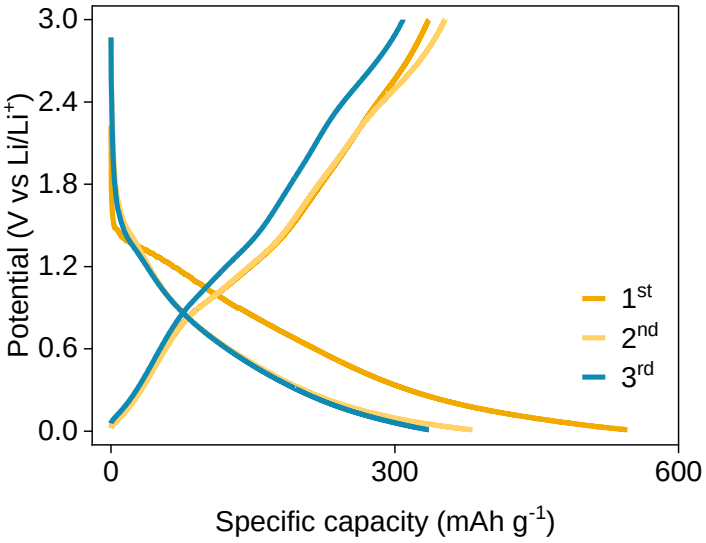

Figure S7. Galvanostatic charge and discharge curves of TP anode at a current density of 0.1 A g^{-1} .

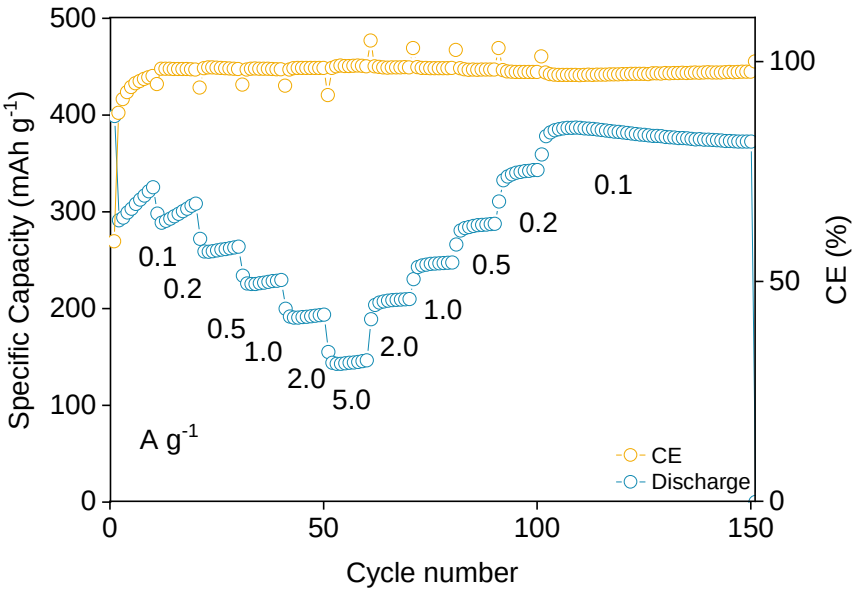

Figure S8. Rate performance of TP anode.

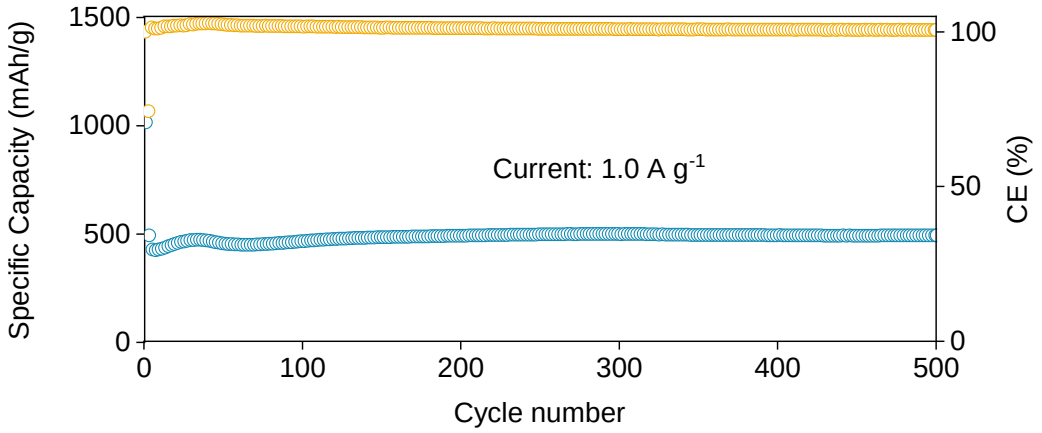

Figure S9. Long cycling performance measured at the current density of 1.0 A g^{-1}.

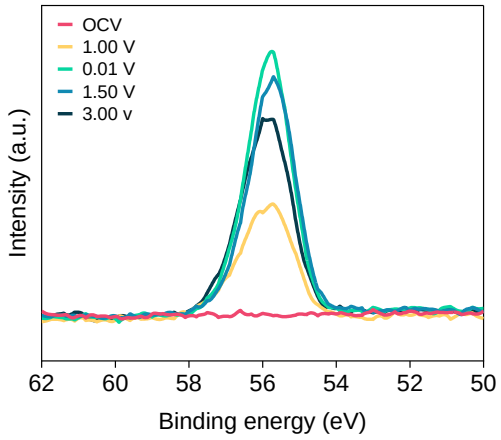

Figure S10. XPS spectra of Li 1s in the TP-Ni electrodes during the first discharge/charge cycle.

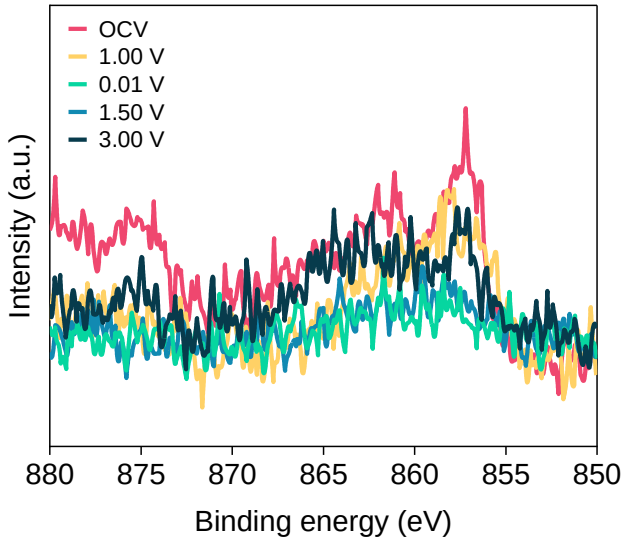

Figure S11. XPS spectra of Ni 2p in the TP-Ni electrodes during the first discharge/charge cycle

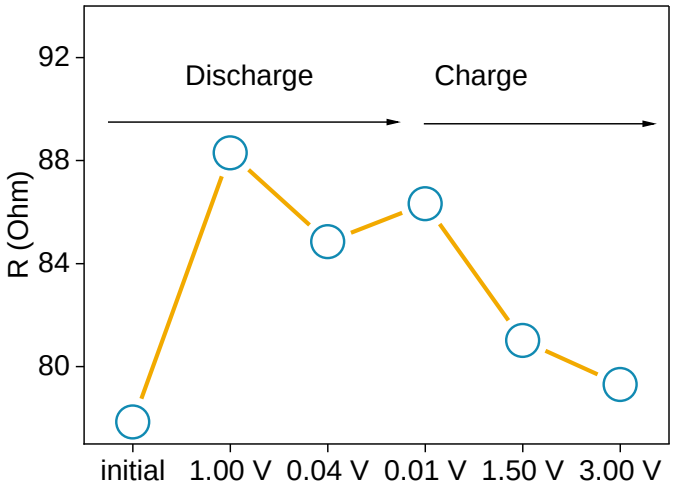

Figure S12. The summary of impedances at different discharge/charge states in the first cycle.

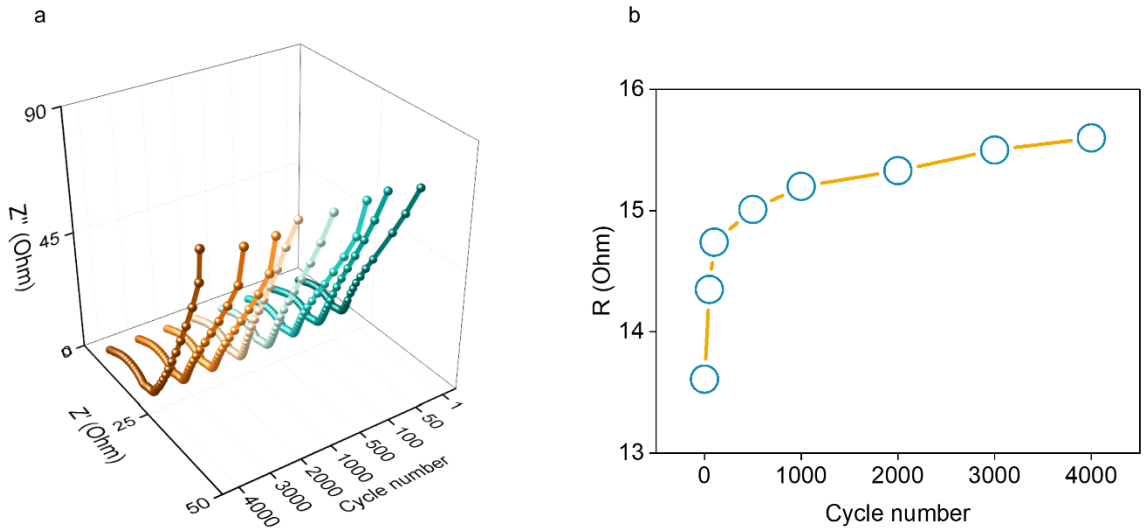

Figure S13. (a) Nyquist of TP-Ni anodes after different cycles. (b) The summary of impedances after different cycles.

Table S1. The content of different elements in the prepared TP-Ni material according to EDS.

Sample	C (wt.%)	O (wt.%)	Ni (wt.%)
TP-Ni	52.15	43.83	4.02

Table S2. The R_{ct} and D_{Li+} of TP and TP-Ni electrodes from EIS.

Sample	R_{ct}(Ω)	D_{Li+} ($cm^2 s^{-1}$)
TP	134.7	2.19×10^{-13}
TP-Ni	49.7	1.50×10^{-11}