Supplementary Information

Nitrogen-Doped Porous Carbons Derived from Peanut Shells as Efficient Electrodes for High-Performance Supercapacitors

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Supplementary Results

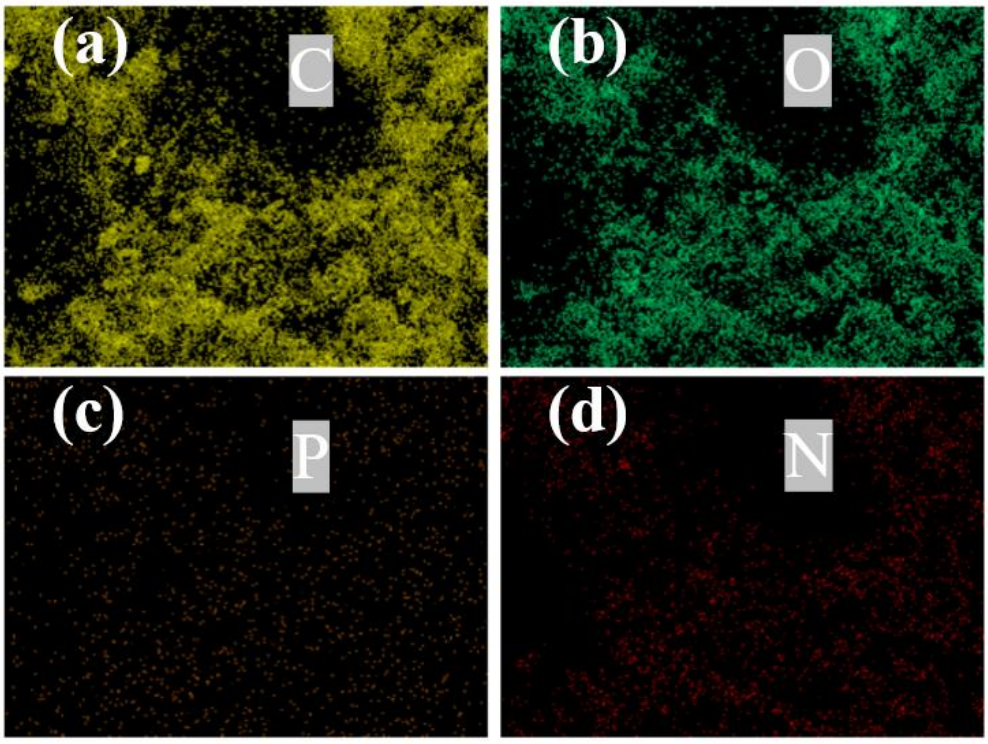


Figure S1. EDS mapping images of peanut shell-based material PA-1-1.

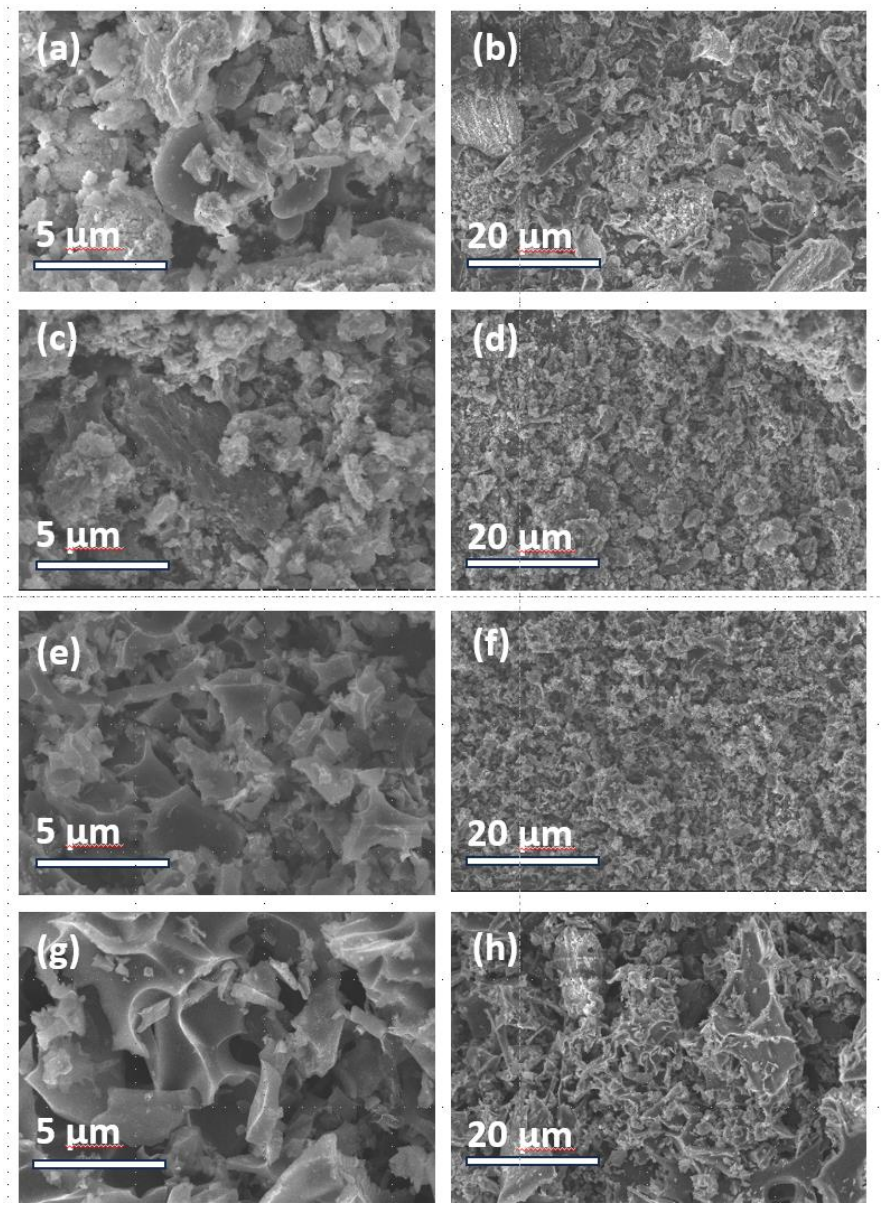


Figure S2. SEM of peanut shell-based materials PA-1-Y: (a, b) PA-1-0, (c, d) PA-1-1, (e, f) PA-1-2, and (g, h) PA-1-3.

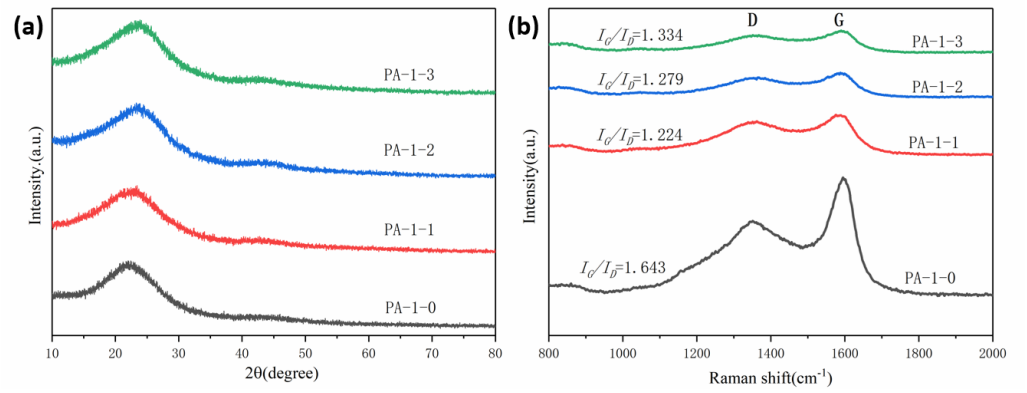


Figure S3. (a) XRD patterns of PA-1-Y and (b) Raman spectra of PA-1-Y.

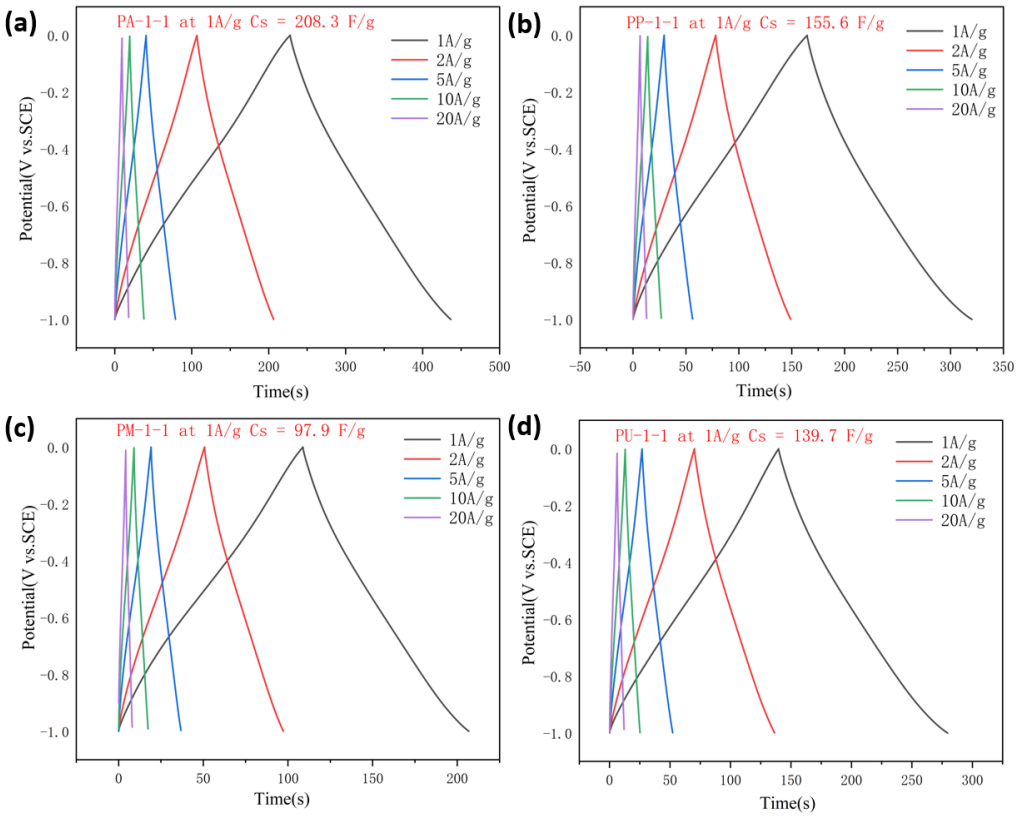


Figure S4. GCD curves of (a) PA-1-1, (b) PP-1-1, (c) PM-1-1, and (d) PU-1-1 at different current densities of 1, 2, 5,10, and 20 A/g.

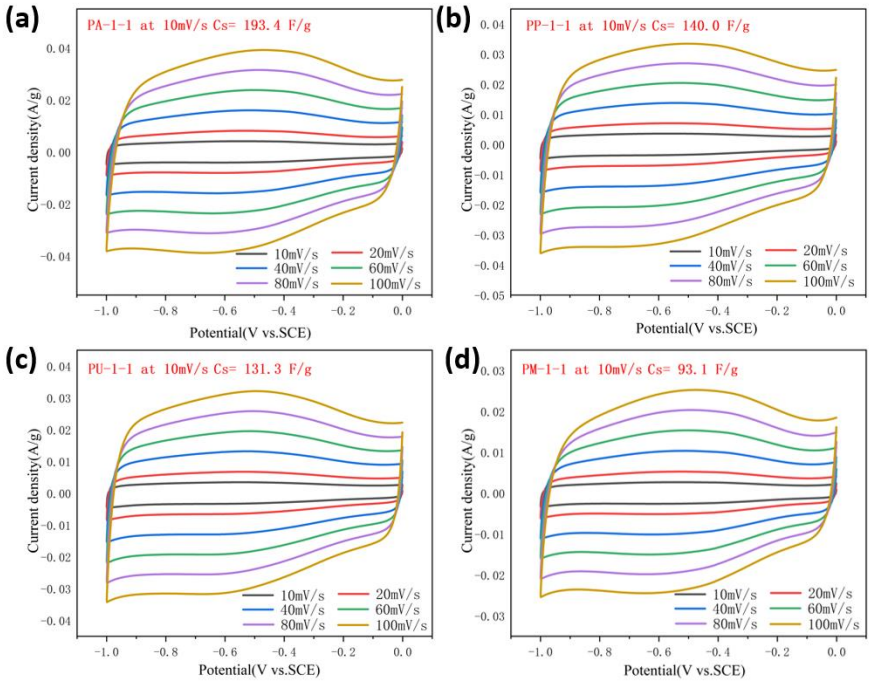


Figure S5. CV curves of (a) PA-1-1, (b) PP-1-1, (c) PU-1-1, and (d) PM-1-1 electrodes at a scan rate of 10–100 mV/s.

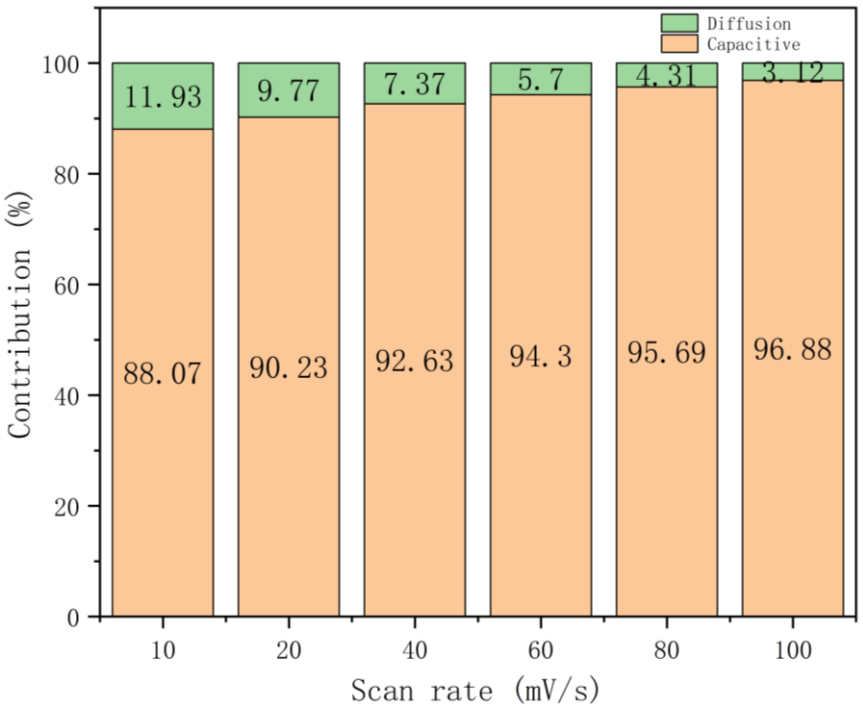


Figure S6. Kinetic behavior of PA-1-1 at different scan rates.

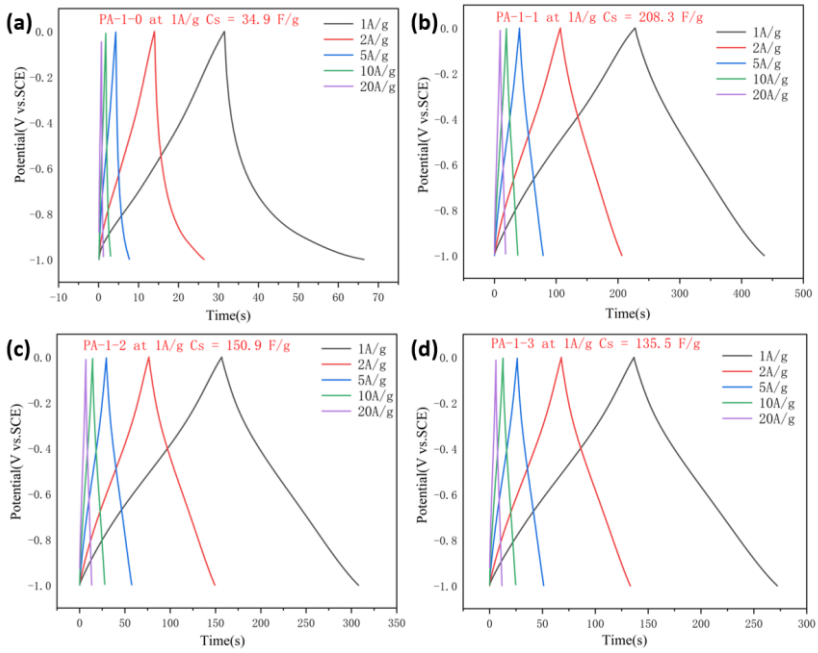


Figure S7. GCD curves of (a) PA-1-0, (b) PA-1-1, (c) PA-1-2, and (d) PA-1-3 electrodes at different current densities of 1, 2, 5,10, and 20 A /g.

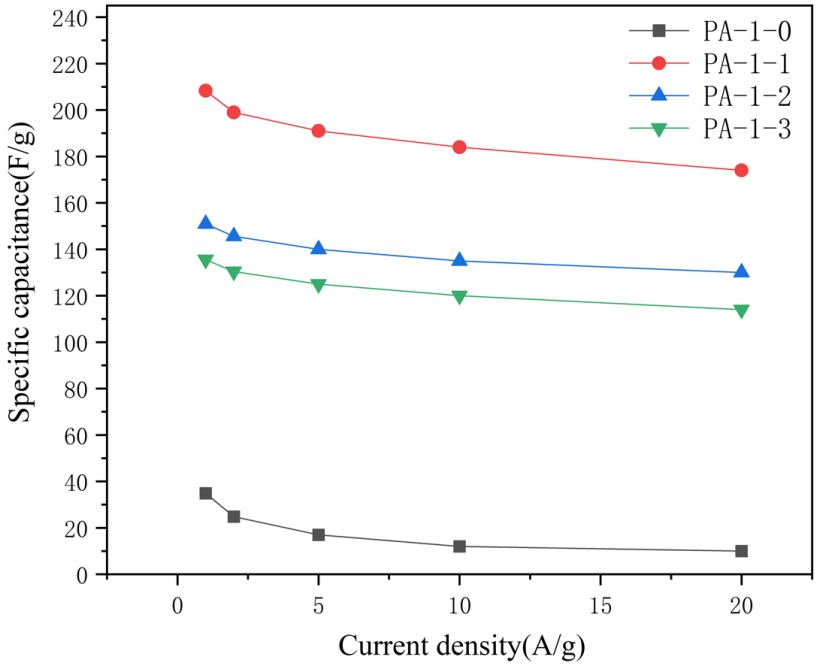


Figure S8. Rate performance of PA-1-Y at the current density of 1, 2, 5, 10, and 20 A/g.

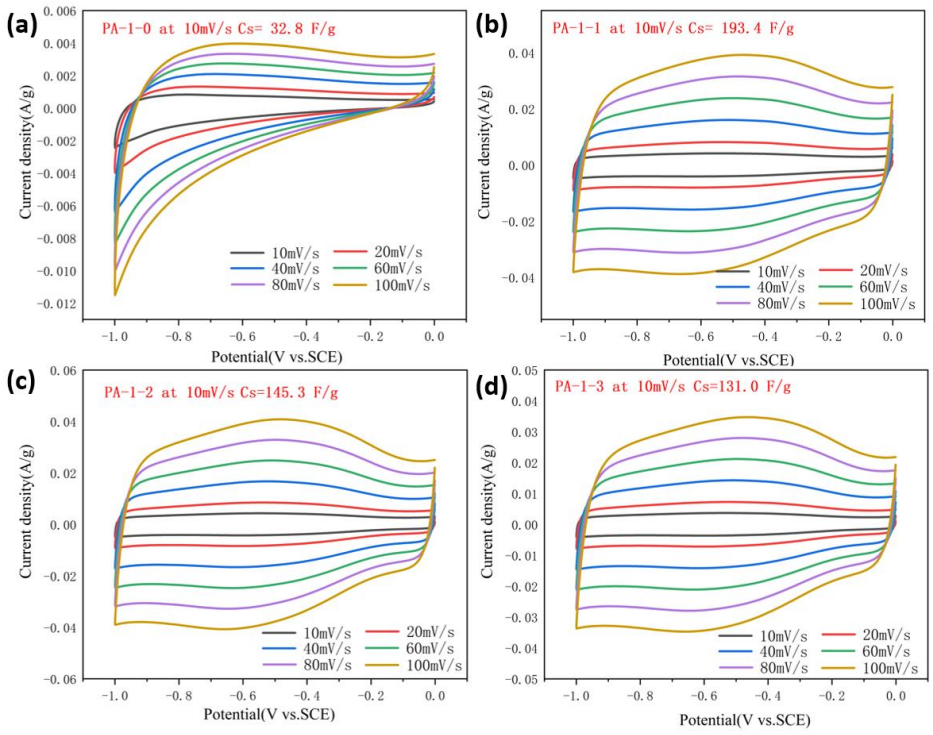


Figure S9. CV curves of (a) PA-1-0, (b) PA-1-1, (c) PA-1-2, and (d) PA-1-3 electrodes at a scan rate of 10–100 mV/s.

Table S1. Textural properties data of the pristine and nitrogen-doped samples

Sample	Adsorption/ Desorption	BET Surface Area (m^2/g)	Average Pore Width (nm)	Pore Volume (cm^2/g)
PA-0-1 (undoped)	A	488.9726	10.4558	0.303173
	D		10.6073	0.314254
PA-1-1(doped)	A	602.7140	13.1223	0.453513
	D		12.4247	0.501666

Table S2. Parameters in the modified Randles circuit

	Rs	Rct	Wo-R	Wo-P	CPE-P
PA-1-1	0.68	0.47	3.48	0.42	1.10
PP-1-1	1.02	0.46	5.74	0.41	1.07
PU-1-1	0.60	0.45	9.77	0.58	0.88
PM-1-1	1.24	1.23	4.58	0.65	0.72