

Figure S1 Schematic diagram of dynamic adsorption device for chlorobenzene

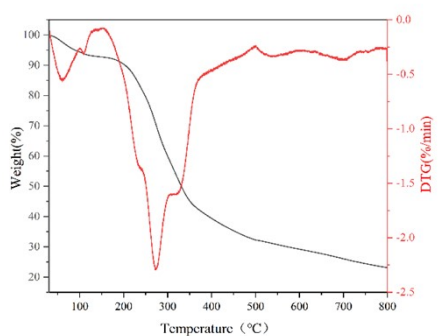


Figure S2 TGA curve of biomass raw materials

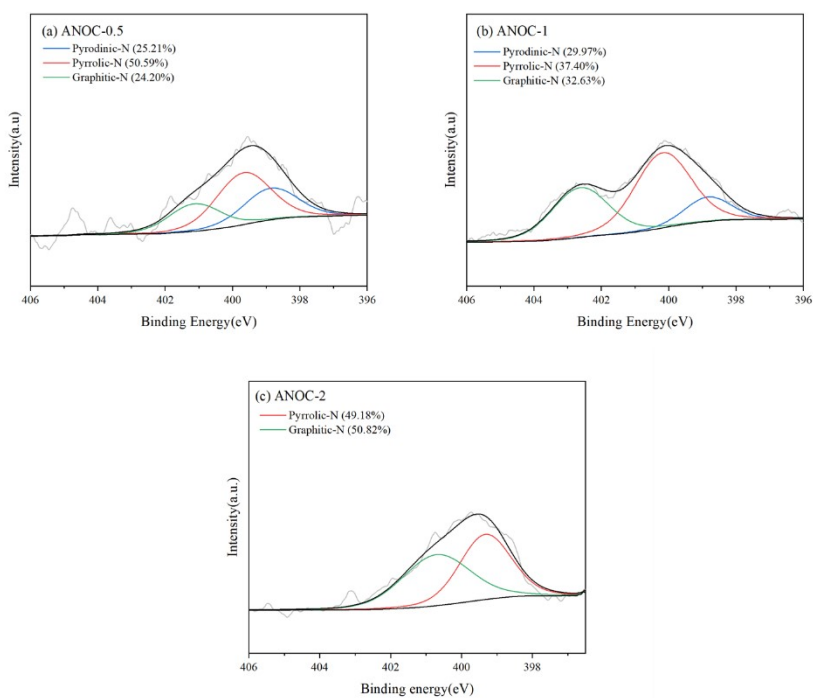


Figure S3 XPS N1s spectra of nitrogen-doped porous carbon

Table S1 Surface nitrogen-containing functional group content of ANOC_x and AOC

| sample | XPS (at%) | | | |
|----------|-----------|-------|-------|-------|
| | N | N-6 | N-5 | N-Q |
| NAOC-0.5 | 0.69 | 0.174 | 0.349 | 0.167 |
| NAOC-1 | 0.81 | 0.243 | 0.303 | 0.264 |
| NAOC-1.5 | 1.01 | - | 0.615 | 0.455 |
| NAOC-2 | 0.88 | - | 0.433 | 0.447 |
| AOC | 0.52 | 0.205 | 0.258 | 0.057 |

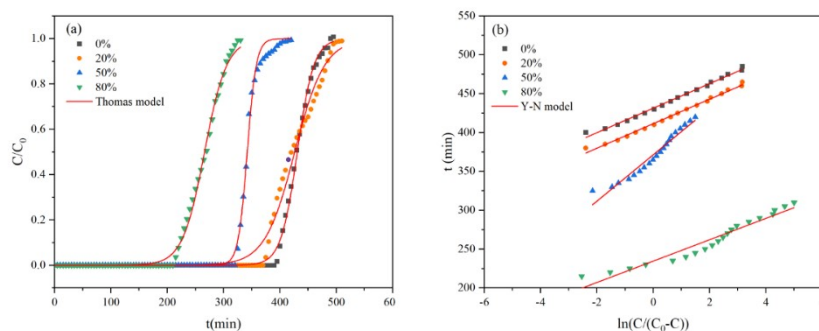


Figure S3 Dynamic adsorption curves and kinetic fitting of chlorobenzene under different humidity conditions for ANOC-1.5

Table S2 Results of chlorobenzene dynamic adsorption of ANOC-1.5 under different humidity conditions

| RH | $t_{0.05}$ (min) | $Q_{0.05}$ (mg/g) | $t_{0.5}$ (min) | t (min) | Q (mg/g) |
|-------|------------------|-------------------|-----------------|-----------|------------|
| 0%RH | 400 | 1086.51 | 435 | 500 | 1187.19 |
| 20%RH | 375 | 1018.47 | 420 | 510 | 1161.97 |
| 50%RH | 320 | 869.30 | 340 | 420 | 936.59 |
| 80%RH | 215 | 583.82 | 270 | 330 | 722.30 |

Notes : 0%RH, 20%RH, 50%RH and 80%RH represent humidity conditions of 0%, 20%, 50% and 80% relative humidity, respectively.