Electronic Supplementary Material (ESI) for RSC Advances.

Table S1

Porous structure parameters of crab shell resultant activated carbon at different impregnation ratios.

Parameters	CSAC-1	CSAC-2	CSAC-3	CSAC-4	CSAC-5
BET surface area ($m^2\ g^{-1}$)	1782	2144	3442	2276	2188
Total pore volume ($cm^3\ g^{-1}$)	0.830	1.085	2.327	2.246	2.251
t-method micropore volume ($cm^3\ g^{-1}$)	0.725	0.806	0.642	0.045	0.019
BJH method mesopore volume ($cm^3\ g^{-1}$)	0.208	0.507	2.105	2.349	2.374
Average pore diameter (nm)	1.863	2.023	2.704	3.947	4.115

Table S2

The relative element contents on the surface of crab shell, acidized crab shell, carbonized crab shell and crab shell resulting activated carbon.

Sample	C	Na	Mg	Si	Al	P	Cl	K	Ca	Zn	Mn	Cu	Pb
CS	-	4.29	4.06	-	-	15.46	7.38	2.27	59.02	-	0.28	5.19	2.05
ACS	-	-	-	-	-	56.94	5.58	1.70	7.69	28.09	-	-	-
CCS	-	5.94	-	62.59	15.72	-	-	2.60	7.10	-	-	6.04	-
CSAC	97.46	-	-	-	-	-	1.22	-	0.70	-	-	0.63	-

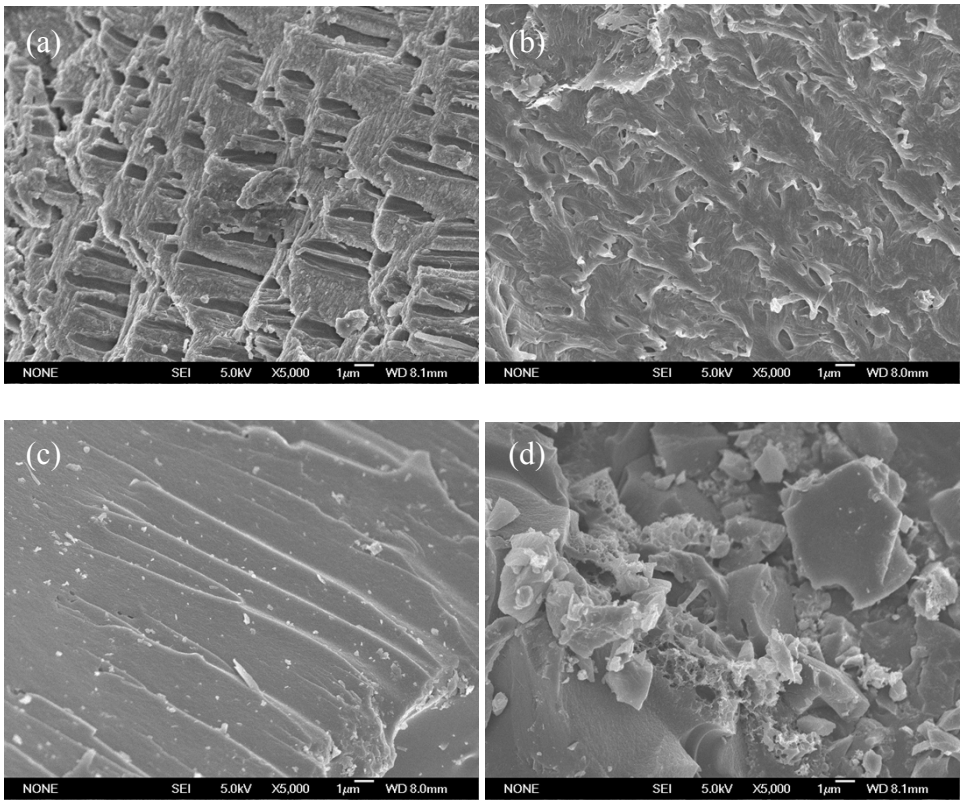

Fig. S1. Scanning electron microscopy image of (a) raw crab shell, (b) acidized crab shell, (c) carbonized crab shell and (d) crab shell activated carbon (×5000).

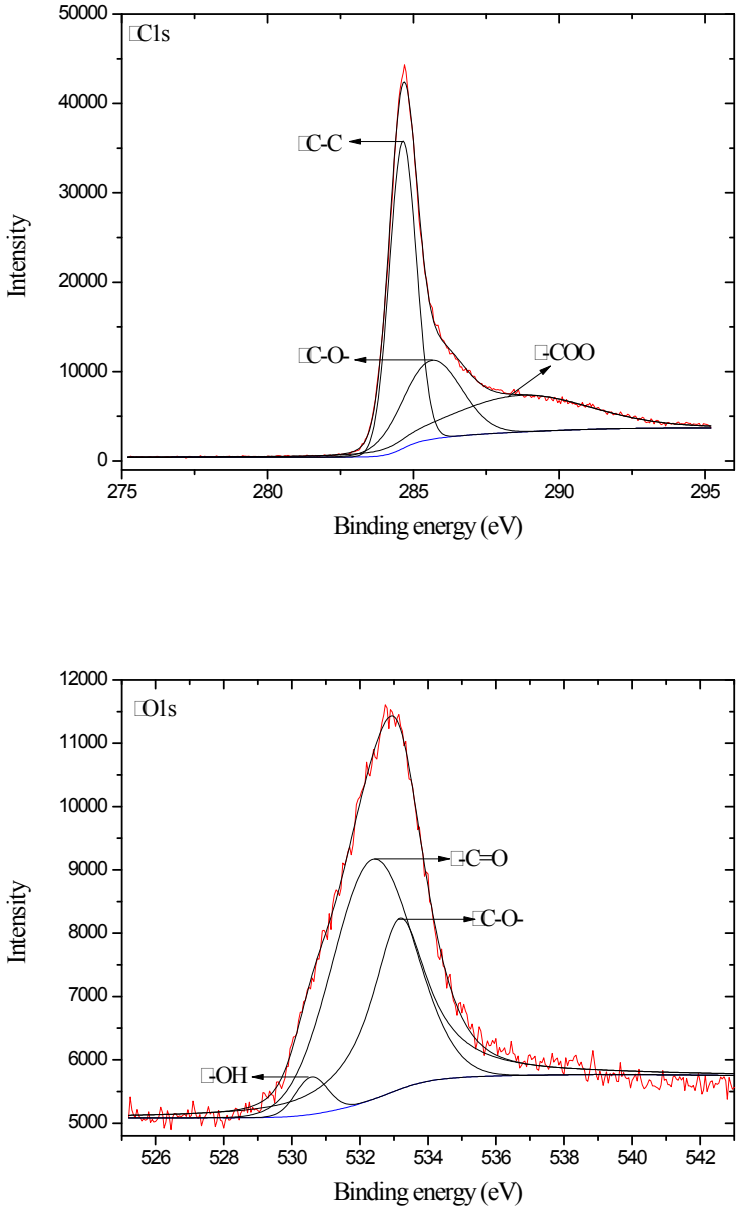

Fig. S2. C 1s and O1s XPS spectra of CSAC.