Preparation of a Highly Porous Carbon Material Based on Quinoa Husk and Its Application for Removal of Dyes BY Adsorption

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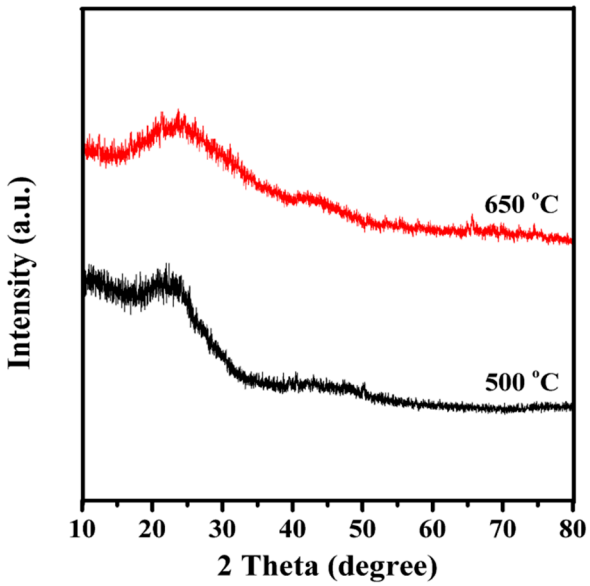

Figure S1. XRD of C-QH at different carbonization temperatures.

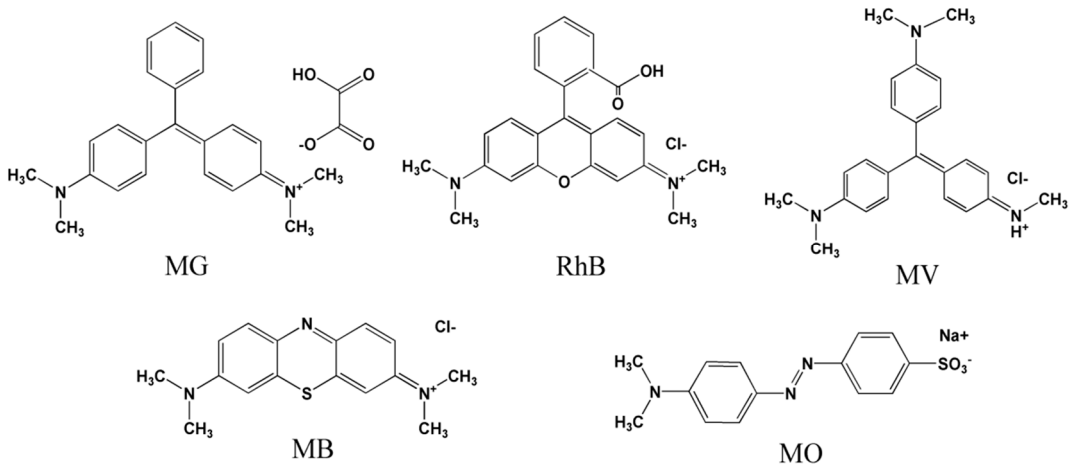

Figure S2. The structures of malachite green (MG), rhodamine B (RhB), methyl violet (MV), methylene blue (MB), and methyl orange (MO).

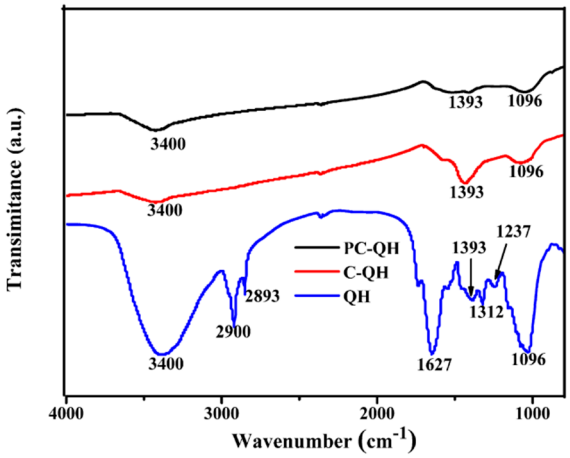

Figure S3. FT-IR spectra of QH, C-QH, and PC-QH.

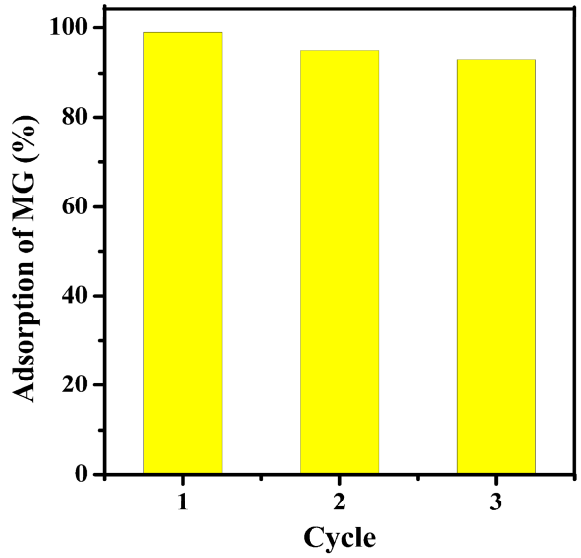

Figure S4. The reusability of PC-QH (pH: 7; C_0: 100 mg g-1; V: 100 mL).

Table S1. Comparison of the adsorption capacity of PC-QH to MG with other adsorbents.

Dye	Adsorbents	q_m (mg g^{-1})	Refs.
MG	Cellulose	2.42	[S1]
	Hen feathers	2.82	[S2]
	Neem sawdust	4.35	[S3]
	Sugarcane dust	4.88	[S4]
	Novel chitosan ionic liquid beads	8.07	[S5]
	Arundo donax root carbon	8.69	[S6]
	Ricinus communis based activated carbon	27.78	[S7]
	Carbonized pomegranate peel	31.45	[S8]
	Activated carbon prepared from Rubber wood sawdust	36.45	[S9]
	Borassus aethiopum flower biomass based activated carbon	48.48	[S10]
	Forestry waste mixture	52.61	[S11]
	Natural Carica papaya wood	52.63	[S12]
	Activated carbon derived from rice husks	57.14	[S13]
	Rattan sawdust	62.71	[S14]
	Rice husk bio-char	67.60	[S15]
	Rice husk	76.92	[S16]
	Adsorbent prepared from maize cob powder	80.64	[S17]
	Bivalve shell-treated Zea mays L. (maize) husk leaf	81.50	[S18]
	Beech sawdust	83.21	[S19]
	Walnut shell	90.80	[S20]
	Rice bran-based composites	93.68	[S21]
	Oak acorn peel	111.85	[S22]
	Modified sphagnum peat moss	121.95	[S23]
	Rice straw-derived char	148.74	[S24]
	Oil palm trunk fibre	149.35	[S25]
	Chitosan	166.00	[S26]
	Activated carbon prepared from almond gum	196.07	[S27]
	Jute fiber based carbon	196.08	[S28]
	Raw corn straw (RCS)	200.00	[S29]
	Ultrasound-assisted modified corn straw (MCS)	210.00	[S29]
	CO_2-activated porous carbon derived from cattail biomass	210.18	[S30]
	Cellulose nanofibril aerogels	212.70	[S31]
	Carbon aerogels	238.20	[S32]
	Activated carbon produced from spent tea leaves	256.40	[S33]
	Activated carbon prepared from bamboo	263.58	[S34]
	Covalently functionalized Fe_3O_4@SiO_2–graphene oxides core–shell	265.87	[S35]
	Fabrication of starch-graft-poly(acrylamide)/grapheneoxide/hydroxyapatite	297.00	[S36]
	Tetraethylenepentamine-functionalized Rosa canina-L fruits activated carbon	333.30	[S37]
	Biodegradable adsorbent based on amylopectin and poly	352.11	[S38]
	Cellulose modified with maleic	370.00	[S39]

Reduction of graphene oxide	416.70	[S40]
Reduced graphene oxide	476.20	[S41]
Magnetic graphene oxide	714.30	[S42]
TEMPO-oxidized cellulose beads	740.00	[S43]
Fibrous cellulose sulfate prepared from medical cotton waste	960.00	[S44]
Macroalgae-derived biochar (MDBC800)	5306.20	[S45]
PC-QH	1365.10	This work

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