

Electronic supplementary information

Green synthesis of carbon dots and their applications

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Table S1. References for images in Figure 1. All images are in the public domain.

Image	Source
walnut	https://commons.wikimedia.org/wiki/File:Walnuts_no_shell.jpg
tulsi	https://commons.wikimedia.org/wiki/File:Basil-raihan.jpg
ginkgo	https://commons.wikimedia.org/wiki/File:GinkgoSaplings.jpg
prickly pear	https://commons.wikimedia.org/wiki/File:Prickly_Pear_Closeup.jpg
<i>Eleusine coracana</i>	https://commons.wikimedia.org/wiki/File:Finger_millet_3_11-21-02.jpg
<i>Prosopis juliflora</i>	https://commons.wikimedia.org/wiki/File:Prosopis_juliflora.jpg
<i>Eleocharis dulcis</i>	https://commons.wikimedia.org/wiki/File:Wasserkastanien.jpg

Table S2. References for data shown in Figures 1b, 2d, 2e, 2f, 3f.

Carbon source	Reagents type	Reaction medium	Synthesis conditions	Synthesis method	Filtration	Centrifugation	Dialysis	Size [nm]	N:C	O:C	Excitation [nm]	Emission [nm]	QY [%]	Ref
glycine, urea	refined compound	water	800 W, 3 min	microwave	no	no	yes	3.2	0.396	0.419	320	380	13	1
mulberry	raw material	water	200 °C, 6 h	hydrothermal	yes	no	yes	3	0.058	0.330	320	390	-	2
L-ascorbic acid, β-alanine	refined compound	water	180 °C, 1 h	microwave	no	yes	yes	-	0.054	0.332	325	401	14	3
<i>Borassus flabellifer</i>	raw material	air	300 °C, 2 h	dry heating	yes	no	no	5.1	-	-	320	403	13.97	4
<i>Abelmoschus manihot</i>	raw material	water	220 °C, 4 h	hydrothermal	yes	yes	no	9	0.251	0.072	330	410	30.8	5
<i>Osmanthus fragrans</i>	raw material	water	240 °C, 5 h	hydrothermal	yes	yes	yes	2.23	0.041	0.376	340	411	18.53	6
citric acid, L-phenylalanine	refined compound	water	200 °C, 8 h	hydrothermal	yes	no	yes	11.9	0.136	0.355	350	413	65	7
celery, L-glutathione	hybrid	water	200 °C, 4 h	hydrothermal	yes	no	no	2.08	-	-	340	415	53	8
<i>Tamarindus indica</i>	raw material	water	210 °C, 5 h	hydrothermal	no	yes	yes	3.4	0.278	0.679	320	417	46.6	9
scallion	raw material	water	180 °C, 12 h	hydrothermal	no	yes	no	3.5	0.123	0.268	320	418	3.2	10
bamboo	raw material	air	300 °C, 3 h	dry heating	yes	no	no	11	0.062	1.002	313	419	5.18	11
rose-heart radish	raw material	water	180 °C, 3 h	hydrothermal	yes	yes	yes	3.6	0.130	0.429	330	420	13.6	12
<i>Eleusine coracana</i>	raw material	air	300 °C, 3 h	dry heating	yes	no	no	5.4	-	-	340	425	-	13
strawberry	raw material	water	180 °C, 12 h	hydrothermal	yes	yes	no	5.2	0.102	0.354	344	427	6.3	14
walnut	raw material	walnut oil	220 °C, 24 h	solvothermal	yes	yes	no	12.3	0.052	1.117	360	430	14.5	15
cherry tomato	raw material	water	180 °C, 6 h	hydrothermal	yes	yes	yes	7	-	-	340	430	9.7	16
citric acid, glutathione	refined compound	water	200 °C, 4 h	hydrothermal	no	yes	yes	6.1	0.202	0.261	340	432	75	17
tulsi	raw material	water	200 °C, 4 h	hydrothermal	yes	no	no	5	0.100	0.886	360	435	3.06	18
lotus	raw material	water	800 W, 6 min	microwave	yes	yes	yes	9.41	0.085	0.533	360	435	19	19
ginkgo	raw material	water	200 °C, 10 h	hydrothermal	yes	yes	yes	3	0.059	0.353	350	436	22.8	20
<i>Prosopis juliflora</i>	raw material	air	200 °C, 1 h	dry heating	no	yes	no	5.8	-	-	350	437	4.9	21
peanut	raw material	air	250 °C, 2 h	dry heating	yes	no	no	1.62	0.040	0.494	320	440	9.91	22
citric acid, L-arginine	refined compound	water	200 °C, 8 h	hydrothermal	no	no	yes	2.7	0.108	0.172	350	440	38.8	23
<i>Bauhinia</i>	hybrid	ethanol/water	1000 W, 10 min	microwave	no	yes	yes	3.4	-	-	355	442	27	24
willow	raw material	water	200 °C, 3 h	hydrothermal	no	yes	yes	1.6	0.430	0.388	360	444	6	25
pomelo	raw material	water	200 °C, 3 h	hydrothermal	no	yes	no	2.9	0.057	0.349	365	444	6.9	26
folic acid	refined compound	water	180 °C, 3 h	hydrothermal	no	yes	no	2.8	-	-	380	445	31.59	27
pepper	raw material	water	180 °C, 5 h	hydrothermal	no	yes	yes	4.6	-	-	360	450	19.3	28
<i>Eleocharis dulcis</i>	raw material	water	120 °C, 5 h	hydrothermal	yes	yes	yes	3	0.050	0.326	380	458	11.2	29
<i>Azadirachta indica</i>	raw material	water	150 °C, 4 h	hydrothermal	no	yes	yes	3.2	0.088	0.120	340	467	27.2	30
potato	raw material	water	220 °C, 3 h	hydrothermal	no	yes	no	11	-	-	400	470	-	31
black pepper	raw material	water	200 °C, 12 h	hydrothermal	yes	no	yes	3.5	-	-	390	489	43.6	32
maize	raw material	water	160 °C, 10 h	hydrothermal	yes	no	yes	5.2	0.016	0.346	420	500	7.6	33
<i>Ocimum sanctum</i>	raw material	water	180 °C, 4 h	hydrothermal	yes	no	yes	2.4	0.180	0.347	450	500	9.3	34
<i>Allium fistulosum</i>	raw material	water	220 °C, 3 h	hydrothermal	no	yes	yes	4.22	0.367	0.378	412	503	10.48	35
watermelon	raw material	air	220 °C, 2 h	dry heating	yes	yes	yes	2	0.015	0.308	470	537	7.1	36

QY = Quantum yield

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