

Supporting Information

Design and Preparation of Biomass-Derived Carbon Materials for Supercapacitors: A Review

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Table S1. Proximate chemical compositions of typical fruit-based biomass (the compositions of the fruit parts are obtained from dried basis [DB], except the contents of moisture are obtained from wet basis[WB]. The unit of the values is represented by *grams per 100 grams DB*).

Biomass	Fruit part	Moisture	Ash	Crude protein	Total lipids	Crude fiber
Avocado[74]	Pulp	86.7 ± 0.7	2.1 ± 0.6	12.5 ± 5.1	28.6 ± 7.8	41.1 ± 2.8
	Seed	67.2 ± 0.6	2.3 ± 0.4	9.6 ± 1.6	3.9 ± 0.3	10.7 ± 2.8
	Raw peel	65.7 ± 3.1	1.5 ± 0.3	6.3 ± 1.1	3.5 ± 0.7	46.9 ± 2.7
	Oven dried peel	4.0 ± 0.1	2.0 ± 0.3	6.4 ± 0.2	4.7 ± 0.4	43.9 ± 2.1
Pineapple[74]	Pulp	86.9 ± 0.2	2.7 ± 0.3	5.2 ± 1.9	1.0 ± 0.2	5.4 ± 0.4
	Seed	-	-	-	-	-
	Raw peel	82.7 ± 0.7	5.0 ± 0.4	8.8 ± 0.6	1.1 ± 0.2	16.3 ± 2.5
	Oven dried peel	8.8 ± 0.2	5.1 ± 0.1	7.3 ± 0.9	1.3 ± 0.1	15.9 ± 2.4
Banana[74]	Pulp	73.6 ± 0.1	2.9 ± 0.2	4.4 ± 0.9	1.7 ± 0.1	2.9 ± 0.1
	Seed	-	-	-	-	-
	Raw peel	89.8 ± 0.3	12.8 ± 0.9	9.7 ± 0.3	5.5 ± 0.1	24.2 ± 0.2
	Oven dried peel	7.6 ± 0.2	13.4 ± 1.8	9.4 ± 0.4	6.1 ± 0.2	23.5 ± 3.8
Papaya[74]	Pulp	87.8 ± 1.3	4.2 ± 1.2	6.5 ± 0.7	1.4 ± 0.1	1.8 ± 0.2
	Seed	5.8 ± 2.5	6.0 ± 1.6	23.3 ± 0.4	20.5 ± 3.7	46.9 ± 2.3
	Raw peel	86.8 ± 0.6	11.6 ± 0.6	20.2 ± 5.5	2.2 ± 0.1	16.5 ± 2.2
	Oven dried peel	12.3 ± 0.6	11.5 ± 0.6	16.9 ± 0.4	1.9 ± 0.1	16.7 ± 0.5
Passion fruit[74]	Pulp	88.1 ± 0.1	3.8 ± 0.3	9.9 ± 2.0	1.6 ± 0.1	5.03 ± 0.5
	Seed	6.0 ± 2.0	1.4 ± 0.1	13.1 ± 1.0	27.5 ± 1.4	56.6 ± 0.5
	Raw peel	86.1 ± 0.6	6.4 ± 0.2	7.0 ± 1.5	0.8 ± 0.1	38.8 ± 3.7
	Oven dried peel	7.2 ± 0.1	7.1 ± 0.5	7.9 ± 0.5	0.7 ± 0.1	41.9 ± 5.3
Watermelon[74]	Pulp	92.3 ± 0.3	1.8 ± 0.9	14.8 ± 3.3	4.6 ± 0.6	2.8 ± 0.2
	Seed	25.1 ± 0.5	2.3 ± 0.7	22.3 ± 4.1	24.1 ± 4.1	48.9 ± 0.6
	Raw peel	92.6 ± 0.6	10.2 ± 2.4	10.2 ± 1.1	1.8 ± 0.1	39.1 ± 7.5
	Oven dried peel	9.6 ± 0.1	9.6 ± 1.3	9.5 ± 0.6	1.4 ± 0.3	37.4 ± 7.1
Melon[74]	Pulp	93.3 ± 0.2	6.1 ± 1.6	11.6 ± 1.8	1.8 ± 0.1	12.2 ± 0.3
	Seed	9.4 ± 0.5	6.1 ± 0.8	17.2 ± 2.0	13.9 ± 2.0	41.6 ± 7.2
	Raw peel	92.1 ± 0.6	9.7 ± 1.6	15.1 ± 2.5	1.7 ± 0.2	17.2 ± 9.8
	Oven dried peel	7.7 ± 0.1	10.4 ± 2.9	14.8 ± 2.7	1.3 ± 0.2	15.4 ± 5.1

Pawpaw [75]	Peel	-	10.22 ± 0.05	18.06 ± 0.92	5.47 ± 0.67	12.16 ± 0.06
Mango ^{l7} _{5]}	Peel	-	3.24 ± 0.18	5.00 ± 0.09	4.72 ± 0.55	15.43 ± 0.13
Apple ^[75]	Peel	-	1.39 ± 0.14	2.80 ± 0.17	9.96 ± 1.52	13.95 ± 0.10
Orange ^[75]	Peel	-	5.17 ± 0.98	9.73 ± 0.63	8.70 ± 0.65	14.19 ± 0.01
Pomegr anate ^[75]	Peel	-	6.07 ± 0.07	3.46 ± 0.02	3.36 ± 0.37	17.63 ± 0.05

Table S2. The amino acid compositions of α -keratin and β -keratin, represented by wool and feather, respectively. [111].

Amino acids	Residues per 100 residues (Wool: α -keratin)	Residues per 100 residues (Feather rachis: β -keratin)
Alanine	5.5	8.7
Arginine	6.6	3.8
Aspartic acid	6.5	5.6
Half cystine	11.4	7.8
Glutamic acid	11.3	6.9
Glycine	8.8	13.7
Histidine	0.8	0.2
Isoleucine	3.4	3.2
Leucine	7.8	8.3
Lysine	3.0	0.6
Methionine	0.5	0.1
Phenylalanine	2.5	3.1
Proline	6.0	9.8
Serine	9.6	14.1
Threonine	6.1	4.1
Tyrosine	4.1	1.4
Valine	5.9	7.8
Tryptophan	-	0.7