Supplementary Materials: The Influence of Torrefaction Temperature on Hydrophobic Properties of Waste Biomass from Food Processing

Arkadiusz Dyjakon[1]*, Tomasz Noszczyk[1] and Martyna Smędzik[2]

Supplementary Table S1.

Table S1. Analysis of hydrophobic properties of the investigated materials.

Type of biomass	Temperature	Hydrophobicity test (WDPT Test)	
		Value	SD*
-	°C	s	
Black currant pomace	105	40.0	4.9
	200	39.5	1.8
	220	36.3	20.4
	240	6.5	2.1
	260	3.5	0.5
	280	3.8	0.4
	300	1987.5	164.3
Apple pomace	105	413.0	41.6
	200	414.0	62.4
	220	635.0	90.3
	240	938.8	37.9
	260	1296.8	180.7
	280	2278.8	61.9
	300	9215.0	458.3
Orange peels	105	3.8	0.4
	200	262.0	44.0
	220	3020.8	397.3
	240	5430.8	254.1
	260	5765.3	158.1
	280	6362.3	192.6
	300	6525.5	225.2
Walnut shells	105	23.0	4.8
	200	2630.0	281.5
	220	4653.3	1475.4
	240	6993.3	317.4
	260	7712.5	438.5
	280	8430.5	196.8
	300	8598.5	262.7
Pumpkin seeds	105	28.3	4.0
	200	248.8	15.1
	220	814.5	142.9
	240	1103.0	101.0
	260	3610.3	115.0
	280	5800.0	200.8
	300	6088.0	140.7

Supplementary Table S2.

Table S2. Analysis of ash content, volatile matter content, higher heating value, lower heating value and moisture content of the investigated materials.

Type of biomass	Temperature	Ash Content (AC)		Volatile matter (VMC)		Higher Heating Value (HHV)		Lover Heating Value (LHV)		Moisture content in analytical state (105°C, 24h) (MC)	
		Value	SD*	Value	SD	Value	SD	Value	SD	Value	SD*
-	°C	%		%		kJ·kg^{-1}		kJ·kg^{-1}		%	
Black currant pomace	105	3.9266	0.0228	81.6100	1.3020	21,908	230	20,816	218	5.07	0.14
	200	4.0449	0.195	79.0252	0.7162	22,549	66	21,425	63		
	220	4.1185	0.0090	77.1934	1.0150	22,633	341	21,898	330		
	240	4.5387	0.0262	73.8268	0.9461	24,045	298	23,149	287		
	260	4.7979	0.0115	71.0052	2.3423	24,135	339	23,419	329		
	280	5.4354	0.0245	66.3994	0.3333	24,828	398	23,947	384		
	300	5.7575	0.0062	62.8451	0.9582	27,809	618	26,902	598		
Apple pomace	105	1.6407	0.0278	93.8351	0.4981	20,751	275	19,640	260	5.34	0.13
	200	1.8766	0.0096	89.7759	0.7660	21,554	390	20,400	369		
	220	2.0342	0.0139	86.1822	0.7269	22,333	174	21,143	165		
	240	2.1012	0.0256	85.0005	0.6666	22,474	118	21,489	113		
	260	2.3526	0.0084	82.6352	1.2847	23,237	157	22,378	151		
	280	2.7301	0.0121	75.8559	0.9253	24,425	144	23,571	139		
	300	4.6602	0.0134	55.7837	0.6843	26,158	142	24,846	135		
Orange peels	105	4.5278	0.0143	90.5693	0.8167	18,558	372	17,971	361	3.25	0.19
	200	4.6315	0.0119	85.2725	0.7503	19,478	354	18,861	342		
	220	4.9775	0.0052	82.4084	1.5566	19,613	72	18,958	70		
	240	5.4940	0.0064	72.0441	1.2795	22,035	200	21,525	195		
	260	7.2485	0.0077	63.8977	1.5169	22,698	192	22,637	192		
	280	8.5184	0.0116	63.6481	1.1998	22,741	44	21,948	42		
	300	10.1053	0.0317	58.6715	4.6043	23,447	416	23,236	412		
Walnut shells	105	0.5798	0.0110	81.4361	1.2575	19,604	330	18,731	316	4.32	0.11
	200	0.7480	0.1179	78.4345	0.4037	20,581	93	19,664	89		
	220	0.8550	0.0095	77.7583	1.2100	20,731	375	19,985	361		
	240	1.2477	0.0085	75.3958	0.6865	21,141	90	20,411	87		
	260	1.5204	0.0078	70.2337	0.9960	22,079	252	21,227	242		
	280	2.1027	0.0097	60.1665	1.2740	23,139	57	22,039	54		
	300	2.1571	0.0066	44.6522	0.8228	24,343	159	22,801	149		
Pumpkin seeds	105	13.5124	0.0113	84.4587	0.9623	18,228	403	17,110	378	5.99	0.09
	200	13.8125	0.0106	81.8497	0.3801	18,615	190	17,473	178		
	220	14.6765	0.0146	73.5969	0.7489	19,513	215	18,305	202		
	240	16.1519	0.0107	69.6927	0.9384	21,191	146	20,711	143		
	260	22.0632	0.0147	67.0856	0.9004	24,894	467	23,958	449		
	280	22.1396	0.0129	65.1744	1.4908	26,088	607	24,998	582		
	300	22.3842	0.0064	42.9712	1.4271	28,488	2846	26,363	2634		