

Table S1. Decision support analysis for biofuel application.

Solution/Variable	Colza*	Cherry stones*	Peach stones	Grape pomace	Softwood*	Sunflower husks*	
Moisture	5.32	4.49	4.95	2.84	5.38	9.33	
Ash, db	7.08	4.47	1.92	12.44	1.29	4.83	
HHV (MJ/kg)	24.49	28.62	33.34	28.11	30.88	31.05	
Ashes	7.48	4.68	2.02	12.28	1.36	5.33	
E (kJ/mol) 10° - stage 2	95.21	111.9	119.2	125.2	131.7	94.1	
E (kJ/mol) 20° - stage 2	99.71	119.5	112.9	125.7	149.7	114.9	
E (kJ/mol) 30° - stage 2	86.3	110.6	84.4	91.6	160.9	96.9	
E (kJ/mol) 40° - stage 2	102.4	116.6	86.3	85.6	86.9	80.2	
E (kJ/mol) 10° - stage 3	96.73	209.4	305.4	148.9	134.97	274.3	
E (kJ/mol) 20° - stage 3	100.34	208.9	231.9	172.3	196.9	166.8	
E (kJ/mol) 30° - stage 2	478.3	118.1	105.4	283.2	157.1	276.2	
E (kJ/mol) 40° - stage 3	112.6	109.4	463.5	99.5	562.9	429.9	
Bulk density (g/cm ³)	0.1585	0.4455	0.4301	0.3737	0.2028	0.27	
Weak dominance	32	34	42	24	30	34	Decision results
Strong dominance	0	0	0	0	0	0	
Metric (dn)	372.90	116.91	364.02	177.80	463.40	330.41	Success rate (worse 0%, best 100%)
Weak dominance	49%	52%	65%	37%	46%	52%	
Strong dominance	0%	0%	0%	0%	0%	0%	
Metric (dn)	20%	75%	21%	62%	0%	29%	
TOTAL (Average)	23%	42%	29%	33%	15%	27%	

Table S3. Decision support analysis for CO₂ sequestration and soil amendment process application.

Solution/Variable	Colza	Cherry stones	Peach stones	Grape pomace	Softwood	Sunflower husks	Decision results
C	78.67	76.71	76.17	73.94	82.62	65.42	
K	2.88	4.3	10.05	4.23	0.06	6.27	
Ca	2.35	1.58	0.45	2.97	0.55	8.2	
P	0.01	2.27	0.21	0.8	0.01	0.04	
C	73.52	67.01	81.56	77.61	82.35	76.76	
S _{BET} (m ² /g)	252.3	265.74	306.72	293.27	331.62	278.25	
Bulk density (g/cm ³)	0.1585	0.4455	0.4301	0.3737	0.2028	0.27	
Electric conductivity (μS/cm)	1015	372	84	1960	56	897	
pH	9,7	9,55	9,1	11,08	8,38	9,93	
Weak dominance	17	23	24	30	18	24	Success rate (worse 0%, best 100%)
Strong dominance	0	0	0	0	0	0	
Metric (dn)	99.56	0.51	4.33	0.81	99.56	24.56	
Weak dominance	38%	51%	53%	67%	40%	53%	
Strong dominance	0%	0%	0%	0%	0%	0%	
Metric (dn)	0%	99%	96%	99%	0%	75%	
TOTAL (Average)	13%	50%	50%	55%	13%	43%	

Table S4. Decision support analysis for supercapacitor process application.

Solution/Variable	Colza	Cherry stones	Peach stones	Grape pomace	Softwood	Sunflower husks	
C	78.67	76.71	76.17	73.94	82.62	65.42	
K	2.88	4.3	10.05	4.23	0.06	6.27	
Ca	2.35	1.58	0.45	2.97	0.55	8.2	
P	0.01	2.27	0.21	0.8	0.01	0.04	
C	73.52	67.01	81.56	77.61	82.35	76.76	
S _{BET} (m ² /g)	252.3	265.74	306.72	293.27	331.62	278.25	
Bulk density (g/cm ³)	0.1585	0.4455	0.4301	0.3737	0.2028	0.27	
Electric conductivity (μS/cm)	1015	372	84	1960	56	897	
Salt content (ppm)	508	186	42	980	28	448	
Weak dominance	18	23	24	30	18	23	Decision results
Strong dominance	0	0	0	0	0	0	
Metric (dn)	99.56	0.51	4.32	0.81.	99.56	24.56	
Weak dominance	40%	51%	53%	67%	40%	51%	Success rate (worse 0%, best 100%)
Strong dominance	0%	0%	0%	0%	0%	0%	
Metric (dn)	0%	99%	96%	99%	0%	75%	
TOTAL (Average)	13%	50%	50%	55%	13%	42%	