

Experimental Peloid Formulation using a Portuguese Bentonite and different Mineral-Medicinal Waters suitable for Therapeutic and Well-being Purposes

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Table S1. Chemical composition of samples (wt.%) following various periods of maturation

Days	With light and stirring			With light and without stirring			With stirring and without light			Without stirring or light		
	30	60	90	30	60	90	30	60	90	30	60	90
	CR1			CR2			CR3			CR4		
Na ₂ O	0.260	0.786	0.414	0.278	0.406	0.399	0.231	0.300	0.339	0.226	0.302	0.260
MgO	5.39	5.37	5.21	5.31	5.32	5.29	5.37	5.40	5.39	5.50	5.57	5.49
Al ₂ O ₃	11.17	10.74	11.79	11.08	10.95	11.19	10.77	10.46	10.79	9.80	9.95	10.07
SiO ₂	42.05	40.88	42.04	42.57	41.55	42.27	41.37	40.19	41.57	38.63	38.99	39.16
P ₂ O ₅	0.031	0.030	0.023	0.024	0.027	0.027	0.024	0.029	0.026	0.025	0.024	0.027
SO ₃	0.098	0.383	0.154	0.223	0.192	0.242	0.120	0.140	0.198	0.112	0.145	0.096
Cl	0.170	0.218	0.261	0.223	0.192	0.242	0.120	0.140	0.198	0.112	0.145	0.096
K ₂ O	0.398	0.381	0.400	0.392	0.369	0.397	0.389	0.377	0.395	0.353	0.359	0.372
CaO	11.39	11.31	10.84	10.94	10.80	11.29	11.46	11.90	11.72	13.63	13.15	13.11
TiO ₂	0.719	0.724	0.705	0.726	0.705	0.749	0.728	0.717	0.736	0.749	0.752	0.726
Cr	0.174	0.169	0.176	0.173	0.170	0.178	0.167	0.169	0.183	0.177	0.167	0.079
MnO	0.079	0.080	0.078	0.076	0.072	0.080	0.071	0.073	0.082	0.079	0.067	0.079
Fe ₂ O ₃	13.17	12.81	12.47	13.14	12.58	13.12	13.10	12.93	13.24	13.70	13.17	13.59
V	0.010	0.012	0.011	0.010	0.012	0.011	0.010	0.011	0.011	0.012	0.012	0.012
Ba	0.022	0.022	0.021	0.021	0.019	0.018	0.017	0.021	0.019	0.013	0.018	0.026
LOI	14.81	16.02	15.38	14.84	16.51	14.51	16.01	17.04	15.10	16.83	17.13	16.67
	CRO1			CRO2			CRO3			CRO4		
Na ₂ O	0.107	0.155	0.133	0.110	0.158	0.142	0.106	0.160	0.125	0.113	0.157	0.146
MgO	5.53	5.47	5.49	5.51	5.48	5.52	5.52	5.50	5.54	5.39	5.42	5.60
Al ₂ O ₃	11.08	10.94	10.90	11.03	11.01	11.03	11.11	10.85	10.95	10.98	10.92	11.30
SiO ₂	42.62	41.67	41.73	41.80	41.58	41.83	41.57	40.86	41.58	42.16	41.24	42.86
P ₂ O ₅	0.025	0.029	0.025	0.026	0.029	0.028	0.026	0.033	0.025	0.034	0.029	0.025
SO ₃	0.009	0.032	0.010	0.014	0.036	0.011	0.007	0.039	0.007	0.007	0.024	0.011

	With light and stirring			With light and without stirring			With stirring and without light			Without stirring or light		
Days	30	60	90	30	60	90	30	60	90	30	60	90
Cl	0.010	0.017	0.017	0.015	0.014	0.020	0.009	0.010	0.017	0.008	0.011	0.015
K ₂ O	0.387	0.392	0.406	0.389	0.406	0.382	0.378	0.400	0.397	0.391	0.402	0.414
CaO	10.95	11.18	11.34	11.25	11.44	11.22	11.50	11.74	11.50	11.33	11.63	11.95
TiO ₂	0.730	0.724	0.739	0.708	0.742	0.732	0.744	0.743	0.725	0.751	0.716	0.767
Cr	0.175	0.159	0.185	0.181	0.165	0.172	0.170	0.169	0.164	0.180	0.173	0.179
MnO	0.080	0.075	0.075	0.077	0.084	0.078	0.080	0.076	0.081	0.079	0.088	0.092
Fe ₂ O ₃	13.20	13.00	13.34	13.45	13.10	13.07	13.34	13.02	13.01	13.00	12.90	13.49
V	0.011	0.012	0.011	0.000	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
Ba	0.019	0.017	0.017	0.020	0.021	0.017	0.022	0.024	0.021	0.018	0.024	0.020
LOI	15.02	16.03	15.36	15.30	15.69	15.66	15.33	16.31	15.79	15.47	16.21	13.08

L.O.I. Loss on ignition

Table S2. Benavila bentonite trace elements (ppm)

Br	Ce	Co	Cs	Cu	Ga	Mo	Nb	Ni	Pb	Rb	Sc	Sn	Sr	U	Y	W	Zn	Zr
1.1	31.4	21.2	6.1	93.7	9.0	1.1	2.9	250	2.7	24.7	43.0	4.3	67.8	1.4	11.0	0.0	62.0	46.7

Table S3. Trace elements (ppm) variation during maturation

	With light and stirring			With Light and without stirring			With stirring and without light			Without light or stirring			With light and stirring			With light and without stirring			With stirring and without light			Without stirring or light		
	CR1			CR2			CR3			CR4			CRO1			CRO2			CRO3			CRO4		
days	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90
Ba	220	220	210	210	190	180	170	210	190	130	180	260	190	170	170	200	210	170	220	240	210	180	240	200
Br	2.3	2.1	3.2	4.2	2.3	3.4	4.2	3.4	3.7	2.2	3.1	3.7	3.7	4.2	2.3	3.7	4.2	2.3	3.4	2.2	3.1	3.1	2.9	2.5
Ce	35.5	29.2	17.6	27.5	17.4	22.0	24.1	25.4	27.1	26.8	28.5	27.0	27.1	27.5	17.4	27.1	27.5	17.4	22.0	26.8	28.5	27.8	32.4	30.7

	With light and stirring			With Light and without stirring			With stirring and without light			Without light or stirring			With light and stirring			With light and without stirring			With stirring and without light			Without stirring or light					
	CR1			CR2			CR3			CR4			CRO1			CRO2			CRO3			CRO4					
days	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90	30	60	90
Cl	1700	2180	2610	2230	1920	2420	1200	1400	1980	1120	1450	960	100	170	170	150	140	200	90	100	170	80	110	150			
Co	15.6	18.0	17.2	16.6	18.3	15.1	17.0	17.9	18.2	18.0	14.4	17.9	18.2	16.6	18.3	18.2	16.6	18.3	18.1	18.0	14.4	16.7	16.8	17.5			
Cr	1740	1690	1760	1730	1700	1780	1670	1690	1830	1770	1670	1740	1750	1590	1850	1810	1650	1720	1700	1690	1640	1800	1730	1790			
Cs	0.0	0.0	0.0	5.7	6.0	0.0	5.6	7.1	5.1	5.7	0.0	0.0	5.1	5.7	6.0	5.1	5.7	6.0	5.7	5.7	0.0	0.0	0.0	0.0			
Cu	42.7	42.8	46.9	45.9	44.4	41.3	38.0	47.7	50.0	48.4	48.8	46.3	50.0	45.9	44.4	50.0	45.9	44.4	45.7	48.4	48.8	45.7	52.0	44.2			
Ga	11.1	11.2	11.0	11.2	11.3	10.9	11.5	12.1	11.6	11.3	11.2	11.9	11.6	11.2	11.3	11.6	11.2	11.3	10.9	11.3	11.2	11.1	11.5	11.3			
Mo	1.2	1.0	1.3	0.9	1.2	1.4	0.0	1.0	0.9	0.8	0.9	1.0	0.9	0.9	1.2	0.9	0.9	1.2	1.1	0.8	0.9	0.0	0.9	1.0			
Nb	3.4	2.7	3.4	2.8	3.1	3.0	2.7	3.0	3.3	3.3	2.9	2.8	3.3	2.8	3.1	3.3	2.8	3.1	3.4	3.3	2.9	2.3	3.4	2.9			
Ni	71.1	68.8	69.4	73.2	75.3	68.2	70.8	72.1	73.8	75.3	76.2	71.7	73.8	73.2	75.3	73.8	73.2	75.3	73.8	75.3	76.2	70.7	71.7	73.2			
Pb	62.3	13.1	9.5	5.2	6.3	8.8	5.5	5.6	25.0	5.2	6.9	39.0	25.0	5.2	6.3	25.0	5.2	6.3	16.7	5.2	6.9	20.6	4.9	5.3			
Rb	19.0	19.4	18.4	19.6	19.1	18.6	19.6	19.0	19.8	19.5	19.3	19.4	19.8	19.6	19.1	19.8	19.6	19.1	20.1	19.5	19.3	18.9	19.1	18.6			
Sc	49.5	49.4	51.4	47.7	47.5	50.5	47.6	47.9	47.1	46.5	47.2	47.6	47.1	47.7	47.5	47.1	47.7	47.5	47.0	46.5	47.2	49.1	49.6	49.3			
Sn	5.9	7.0	6.3	7.6	6.9	6.8	7.2	7.7	7.0	8.8	8.5	10.0	7.0	7.6	6.9	7.0	7.6	6.9	7.5	8.8	8.5	7.4	6.9	4.9			
Sr	91.4	92.3	99.2	82.9	83.3	99.8	82.4	83.6	84.1	82.7	83.7	83.6	84.1	82.9	83.3	84.1	82.9	83.3	84.1	82.7	83.7	83.3	83.4	83.4			
U	1.9	1.6	1.8	1.9	0.0	1.9	1.5	1.9	1.9	1.7	1.5	2.0	1.9	1.9	0.0	1.9	1.9	0.0	2.0	1.7	1.5	1.4	1.7	1.7			
Y	11.7	11.1	11.3	11.1	11.7	11.5	11.1	11.3	11.7	11.8	11.9	11.2	11.7	11.1	11.7	11.7	11.1	11.7	11.6	11.8	11.9	11.6	12.0	11.6			
V	100	120	110	100	120	110	100	110	110	120	120	120	110	120	110	110	110	110	110	110	110	110	110	110			
W	0.0	0.0	0.0	5.9	4.4	5.9	3.9	5.1	0.0	0.0	0.0	5.1	0.0	5.9	4.4	0.0	5.9	4.4	5.5	0.0	0.0	0.0	0.0	0.0			
Zn	45.7	45.4	45.3	47.4	47.1	45.7	46.2	46.7	46.9	48.3	46.6	47.8	46.9	47.4	47.1	46.9	47.4	47.1	46.8	48.3	46.6	45.9	45.3	45.1			
Zr	46.1	45.0	46.8	44.8	45.5	46.5	44.9	45.4	45.0	44.9	46.2	43.7	45.0	44.8	45.5	45.0	44.8	45.5	46.6	44.9	46.2	47.1	47.3	47.1			

Table S4 Supernatant ($\mu\text{g/L}$) variation during maturation

		With light and stirring			With light and without stirring			With stirring and without light			Without stirring or light		
		CR1			CR2			CR3			CR4		
	d.l.	30 d	60d	90d	30d	60d	90d	30d	60d	90d	30d	60d	90d
Al	5	25.00	<d.l.	<d.l.	8.63	<d.l.	33.25	8.63	<d.l.	28.43	10.19	<d.l.	16.19
Ag	0.2	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
As	1	<d.l.	1.06	1.13	<d.l.	1.02	1.18	<d.l.	<d.l.	1	<d.l.	<d.l.	<d.l.
B	10	20.95	32.96	50.55	36.48	30.11	44.18	20.35	21.35	34.14	36.55	25.63	33.68
Ba	0.5	96.83	76.88	66.38	90.11	72.40	62.83	90.39	62.60	62.82	110.57	83.57	72.04
Be	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Bi	5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Ca	0.2	258.1	341.62	369.39	267.73	330.73	373.65	229.88	238.39	273.16	215.81	227.54	243.28
Cd	0.4	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Co	0.2	1.94	2.49	2.79	2.04	2.59	2.85	1.91	1.85	2.40	1.49	1.49	1.59
Cr	0.2	24.01	6.33	5.98	23.41	12.81	9.41	18.79	10.59	2.97	25.12	22.58	20.03
Cu	0.5	<d.l.	0.75	1.70	<d.l.	0.73	1.74	<d.l.	0.57	0.99	<d.l.	0.58	0.87
Fe	5	11.97	5.17	8.95	<d.l.	<d.l.	57.92	<d.l.	5.80	38.30.	<d.l.	<d.l.	24.39
K	1	6.02	7.01	7.80	5.93	6.61	7.53	5.92	5.84	6.50	6.90	6.69	7.08
Li	1	62.48	24.65	37.24	41.79	23.47	32.91	57.52	19.04	28.09	48.30	20.73	27.19
Mg	0.2	457.51	430.32	484.26	465.73	399.47	462.29	401.18	310.29	360.72	373.73	284.71	317.01
Mn	0.5	335.47	493.05	425.75	382.77	566.48	508.52	380.77	399.78	501.85	145.88	172.53	137.98
Mo	0.4	1.29	1.63	0.85	1.56	2.08	1.39	1.71	1.52	1.27	<d.l.	0.79	<d.l.
Na	0.2	600	677	928	599	616	867	501	469	612	523	470	597
Ni	0.4	1.78	3.03	3.39	2.07	3.13	3.40	1.85	2.17	2.92	1.40	1.69	1.80
P	15	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Pb	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Rb	0.5	6.13	<d.l.	<d.l.	6.76	<d.l.	<d.l.	6.38	<d.l.	<d.l.	<d.l.	<d.l.	5.03
Sb	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Sn	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.

		With light and stirring			With light and without stirring			With stirring and without light			Without stirring or light		
		CR1			CR2			CR3			CR4		
	d.l.	30 d	60d	90d	30d	60d	90d	30d	60d	90d	30d	60d	90d
Sr	0.5	2463	4606	4567	2545	2545	4639	2148	3264	3439	2103	3359	3347
Th	3	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Tl	0.1	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
U	0.1	0.69	<d.l.	<d.l.	0.59	<d.l.	<d.l.	0.53	<d.l.	<d.l.	<d.l.	<d.l.	0.47
V	0.1	21.71	21.97	23.41	22.85	21.64	23.94	21.83	20.81	21.77	20.94	19.30	20.07
W	0.5	2.81	3.07	2.46	2.85	3.05	2.66	2.99	2.59	2.29	1.17	1.95	1.54
Zn	5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
		CRO1			CRO2			CRO3			CRO4		
Al	5	<d.l.	<d.l.	47.00	<d.l.	<d.l.	46.05	68.26	<d.l.	35.05	9.03	7.34	66.92
Ag	0.2	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
As	1	2.90	2.60	2.86	2.87	2.97	3.42	2.27	1.64	1.95	2.25	1.91	2.16
B	10	120.15	143.84	162.73	113.12	103.62	157.90	105.14	120.81	130.79	96.03	97.79	107.92
Ba	0.5	135.27	149.74	134.22	173.32	163.82	157.91	95.43	95.64	94.66	85.80	83.78	79.71
Be	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Bi	5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Ca	0.2	34.59	39.20	36.27	39.39	35.95	36.40	31.13	31.49	31.66	29.34	28.72	27.62
Cd	0.4	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Co	0.2	1.21	0.80	0.74	1.43	0.91	0.77	1.65	0.55	0.61	1.03	0.67	0.87
Cr	0.2	13.76	5.56	6.14	7.98	6.77	3.14	23.54	2.25	4.63	23.17	17.53	18.64
Cu	0.5	1.46	0.94	1.45	1.74	1.18	1.08	1.67	0.56	0.69	1.46	0.69	0.95
Fe	5	<d.l.	<d.l.	52.18	<d.l.	<d.l.	59.11	554.95	<d.l.	33.65	<d.l.	<d.l.	123.16
K	1	2.81	3.46	3.38	2.98	3.06	3.26	2.37	3.01	3.00	2.23	2.41	2.31
Li	1	260	270	344	274	191	347	207	214	262	220	189	210
Mg	0.2	58.65	69.46	65.31	67.52	59.89	64.93	47.92	58.99	59.10	49.53	47.10	46.38
Mn	0.5	59.10	82.89	65.81	76.72	94.73	89.06	68.83	48.72	47.26	32.49	32.66	32.62
Mo	0.4	5.84	4.62	3.44	7.58	6.10	4.72	4.35	3.54	2.90	3.78	3.00	1.42
Na	0.2	61.07	85.51	99.82	65.24	70.41	98.49	50.36	69.60	76.77	50.66	59.77	64.77

		With light and stirring			With light and without stirring			With stirring and without light			Without stirring or light		
		CR1			CR2			CR3			CR4		
	d.l.	30 d	60d	90d	30d	60d	90d	30d	60d	90d	30d	60d	90d
Ni	0.4	1.09	0.82	0.87	1.35	1.01	0.98	2.15	0.59	0.78	0.91	0.62	0.81
P	15	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Pb	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Rb	0.5	6.13	<d.l.	<d.l.	6.76	<d.l.	<d.l.	6.38	<d.l.	<d.l.	5.03	<d.l.	<d.l.
Sb	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Sn	0.5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Sr	0.5	282	416	368	318	412	365	228	320	310	234	317	292
Th	3	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
Tl	0.1	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.
U	0.1	0.76	<d.l.	<d.l.	<d.l.	<d.l.	0.67	0.62	<d.l.	<d.l.	0.52	<d.l.	<d.l.
V	0.1	43.96	44.90	45.69	41.14	38.54	44.01	40.12	39.84	40.34	33.97	33.30	33.50
W	0.5	37.98	25.47	24.99	33.64	20.86	19.00	33.52	20.86	17.26	22.22	17.71	18.09
Zn	5	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.	<d.l.

d.l. detection limit

Table S5. pH (mean values \pm S.E.; $n = 3$) and zeta potential ((mean values \pm S.E.; $n = 3$) of the maturation suspensions

	pH (@ 25°C)	Zeta potential (mV)	pH (@ 45°C)	Zeta potential (mV)
CRO1_30d	8.66 \pm 0.023	-0.40 \pm 0.520	8.45 \pm 0.015	-6.88 \pm 0.769
CRO2_30d	8.12 \pm 0.009	-0.68 \pm 0.149	7.98 \pm 0.003	-0.46 \pm 0.147
CRO3_30d	8.45 \pm 0.003	+1.33 \pm 0.044	8.22 \pm 0.009	+0.97 \pm 0.093
CRO4_30d	8.49 \pm 0.006	- 1.28 \pm 0.409	8.30 \pm 0.009	-0.95 \pm 0.151
CRO1_60d	7.96 \pm 0.025	-3.43 \pm 1.006	7.74 \pm 0.065	-0.17 \pm 0.140
CRO2_60d	8.03 \pm 0.009	-0.68 \pm 0.086	7.74 \pm 0.003	-0.65 \pm 0.229
CRO3_60d	8.05 \pm 0.003	-0.29 \pm 0.363	7.73 \pm 0.006	-0.29 \pm 0.194
CRO4_60d	8.02 \pm 0.003	-0.14 \pm 0.031	7.79 \pm 0.003	-0.05 \pm 0.230
CRO1_90d	8.37 \pm 0.006	-15.63 \pm 0.145	8.16 \pm 0.003	-12.73 \pm 0.338
CRO2_90d	8.58 \pm 0.003	-14.00 \pm 0.252	8.27 \pm 0.003	-12.83 \pm 0.433
CRO3_90d	8.63 \pm 0.003	-13.87 \pm 0.296	8.33 \pm 0.003	-10.27 \pm 0.033
CRO4_90d	8.54 \pm 0.006	-16.23 \pm 0.067	8.25 \pm 0.003	-12.47 \pm 0.318
CR1_30d	7.85 \pm 0.0029	-1.74 \pm 0.509	7.82 \pm 0.006	-0.32 \pm 0.487
CR2_30d	7.86 \pm 0.003	-11.43 \pm 0.033	7.78 \pm 0.006	-10.93 \pm 0.524
CR3_30d	7.93 \pm 0.007	-13.30 \pm 0.379	7.84 \pm 0.000	-0.44 \pm 0.193
CR4_30d	7.98 \pm 0.012	-13.30 \pm 0.379	7.82 \pm 0.003	-12.13 \pm 0.318
CR1_60d	7.53 \pm 0.000	+1.03 \pm 0.867	7.26 \pm 0.000	-1.82 \pm 0.630
CR2_60d	7.52 \pm 0.058	-2.17 \pm 0.942	7.29 \pm 0.006	- 0.60 \pm 0.920
CR3_60d	7.62 \pm 0.006	-1.43 \pm 1.005	7.39 \pm 0.000	-1.65 \pm 0.182
CR4_60d	7.67 \pm 0.015	-0.08 \pm 1.386	7.42 \pm 0.003	-0.43 \pm 0.615
CR1_90d	7.64 \pm 0.009	-14.77 \pm 0.433	7.46 \pm 0.01	-13.30 \pm 0.413
CR2_90d	7.56 \pm 0.006	-13.83 \pm 0.371	7.42 \pm 0.009	- 11.12 \pm 0.132
CR3_90d	7.86 \pm 0.01	-14.70 \pm 0.416	7.62 \pm 0.012	-14.43 \pm 0.731
CR4_90d	7.79 \pm 0.003	-13.20 \pm 0.289	7.59 \pm 0.01	-11.53 \pm 0.549

Table S6. Cation exchange capacity (meq/100 g) and amounts of individual cations (mg/L) during the 90 days maturation period

	With Light						Without light						
	Na ⁺	Mg ²⁺	K ⁺	Ca ²⁺	Σcat	CEC	Na ⁺	Mg ²⁺	K ⁺	Ca ²⁺	Σcat	CEC	
CRO1_30d	7	158	4	352	521	49	CRO3_30d	7	155	4	310	477	57
CRO2_30d	6	153	4	341	504	47	CRO4_30d	7	158	5	338	508	54
CRO1_60d	141	5	9	395	550	51	CRO3_60d	140	6	8	420	574	51
CRO2_60d	144	5	9	308	466	73	CRO4_60d	136	5	9	407	558	50
CRO1_90d	143	5	13	370	530	66	CRO3_90d	135	5	9	332	480	61
CRO2_90d	138	5	11	345	499	60	CRO4_90d	150	4	11	356	521	57
CR1_30d	30	164	4	391	589	45	CR3_30d	28	173	5	398	603	56
CR2_30d	32	175	4	413	624	56	CR4_30d	31	167	5	478	681	37
CR1_60d	156	5	54	427	642	55	CR3_60d	144	5	52	328	530	45
CR2_60d	156	5	68	391	620	52	CR4_60d	126	8	77	397	508	43
CR1_90d	150	5	61	303	519	57	CR3_90d	143	5	48	354	550	46
CR2_90d	129	4	74	300	507	54	CR4_90d	159	5	56	376	596	53

	With Stirring						Without Stirring						
	Na ⁺	Mg ²⁺	K ⁺	Ca ²⁺	Σcat	CEC	Na ⁺	Mg ²⁺	K ⁺	Ca ²⁺	Σcat	CEC	
CRO1_30d	7	158	4	352	521	49	CRO2_30d	6	153	4	341	504	47
CRO3_30d	7	155	4	310	477	57	CRO4_30d	7	158	5	338	508	54
CRO1_60d	141	5	9	395	550	51	CRO2_60d	144	5	9	308	466	73
CRO3_60d	140	6	8	420	574	51	CRO4_60d	136	5	9	407	558	50
CRO1_90d	143	5	13	370	530	66	CRO2_90d	138	5	11	345	499	60
CRO3_90d	135	5	9	332	480	61	CRO4_90d	150	4	11	356	521	57
CR1_30d	30	164	4	391	589	45	CR2_30d	32	175	4	413	624	56
CR3_30d	28	173	5	398	603	56	CR4_30d	31	167	5	478	681	37
CR1_60d	156	5	54	427	642	55	CR2_60d	156	5	68	391	620	52
CR3_60d	144	5	52	328	530	45	CR4_60d	126	8	77	297	508	43
CR1_90d	150	5	61	303	519	57	CR2_90d	129	4	74	300	507	54
CR3_90d	143	5	48	34	550	46	CR4_90d	159	5	56	376	596	53

Table S7. Specific surface area (SSA) (m²/g) of studied peloids during maturation

		30 days	60 days	90 days
CR1	Light / Stirring	21.90 ± 0.15	21.45 ± 0.11	24.71 ± 0.11
CR2	Light / No stirring	25.45 ± 0.16	22.42 ± 0.01	18.29 ± 0.79
CR3	No light / Stirring	26.81 ± 0.13	18.13 ± 0.01	23.90 ± 0.10
CR4	No light / No stirring	19.53 ± 0.12	21.36 ± 0.09	25.66 ± 0.15
CRO1	Light / Stirring	32.31 ± 0.33	29.67 ± 0.22	29.90 ± 1.28
CRO2	Light / No stirring	22.28 ± 1.14	34.74 ± 0.26	31.45 ± 0.24
CRO3	No light / Stirring	28.08 ± 0.26	33.38 ± 0.28	25.80 ± 1.21
CRO4	No light / No stirring	41.19 ± 0.35	32.64 ± 0.19	29.82 ± 0.26

Table S8. Cooling time (min) of the samples between 50 and 32°C

T (°C)	CRO1	CRO2	CRO3	CRO4	CR1	CR2	CR3	CR4
	Cooling time							
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.23	0.17	0.42	0.38	0.23	0.17	0.42	0.38
48	0.47	0.38	0.88	0.85	0.47	0.38	0.88	0.85
47	0.72	0.65	1.38	1.40	0.72	0.65	1.38	1.33
46	1.02	0.98	1.93	2.00	1.02	0.98	1.93	1.88
45	1.33	1.37	2.53	2.67	1.33	1.37	2.53	2.48
44	1.73	1.85	3.18	3.33	1.73	1.85	3.18	3.15
43	2.18	2.37	3.92	4.15	2.18	2.37	3.92	3.97
42	2.77	2.98	4.75	5.10	3.40	2.98	4.75	4.92
41	3.45	3.70	5.73	6.10	4.08	3.70	5.73	5.92
40	4.23	4.52	7.00	7.25	4.87	4.50	7.00	7.07
39	5.12	5.45	8.27	8.63	5.75	5.43	8.27	8.45
38	6.22	6.55	9.78	10.33	6.85	6.53	9.78	10.15
37	7.85	7.80	11.80	12.17	8.48	7.78	11.80	11.98
36	9.50	9.28	14.08	14.77	10.13	9.27	14.08	14.58
35	11.47	11.05	18.17	17.98	12.10	11.03	16.95	17.80
34	13.85	13.85	22.25	22.45	14.48	13.83	21.03	22.23
33	16.83	18.12	29.23	28.58	17.47	18.15	28.02	28.37
32	29.63	29.63	41.82	42.93	30.27	25.20	40.60	42.72
50–46	2.43	2.18	4.62	4.63	2.43	2.18	4.62	4.45
45–40	15.70	16.78	27.12	28.60	17.60	16.77	27.12	27.50
39–32	100.47	101.73	155.40	157.85	105.53	97.23	150.53	156.28

Table S9. Oil absorption capacity (%) during the 90 days period of maturation (mean ± S.E. (n = 3))

Peloid	Oil absorption (%)	Peloid	Oil absorption (%)
CR1	34 ± 1.33	CRO1	39 ± 2.00
CR2	31 ± 3.71	CRO2	35 ± 1.67
CR3	30 ± 3.48	CRO3	35 ± 2.33
CR4	33 ± 0.67	CRO4	37 ± 1.20

Table S10. Atterberg limits of the formulated peloids

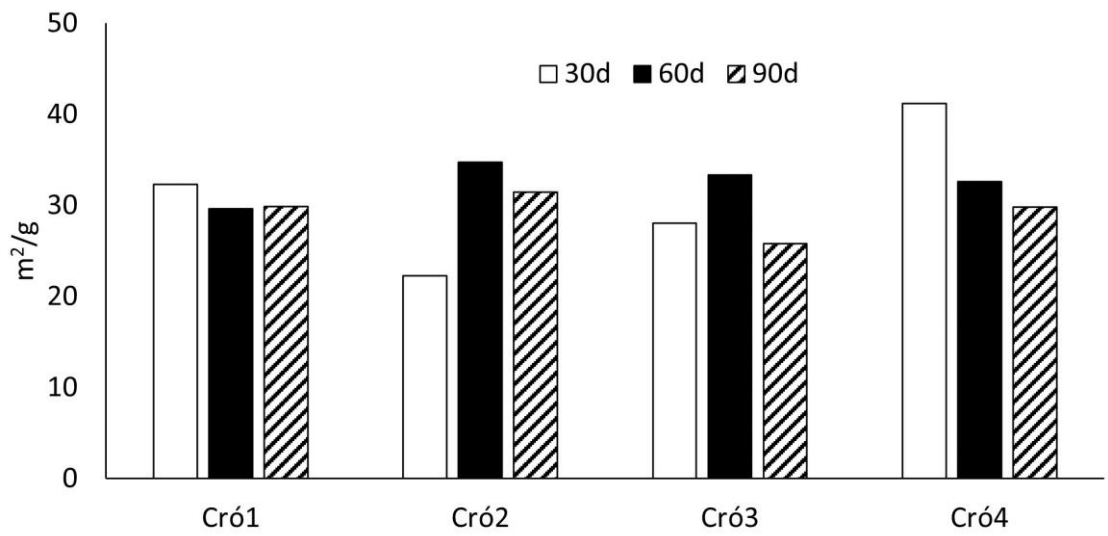
Samples	Maturation		Liquid Limit (%)	Plastic Limit (%)	Plastic Index (%)
	period	(days)			
CR1	30		104.7	59.9	44.8
	60		114.5	62.3	52.2
	90		110.9	44.0	66.9
CR2	30		104.5	55.3	49.2
	60		112.2	50.0	62.2
	90		106.7	45.3	61.4
CR3	30		126.1	60.8	65.3
	60		108.1	52.5	55.6
	90		107.7	46.5	61.2
CR4	30		104.6	60.5	44.1
	60		108.2	59.5	48.7
	90		107.7	44.6	63.1
CRO1	30		127.5	57.2	70.3
	60		118.0	60.5	57.4
	90		116.7	41.7	75.0
CRO2	30		105.8	61.2	44.6
	60		125.6	63.8	61.8
	90		105.0	34.3	70.7
CRO3	30		108.3	51.5	56.8
	60		132.4	65.6	66.8
	90		119.0	49.8	69.3
CRO4	30		105.7	62.2	43.5
	60		120.3	59.6	60.6
	90		110.7	44.3	66.4

Table S11. Concentration of culturable microorganisms, total coliforms, coliform bacteria and *E. coli* in water after 90 days of maturation

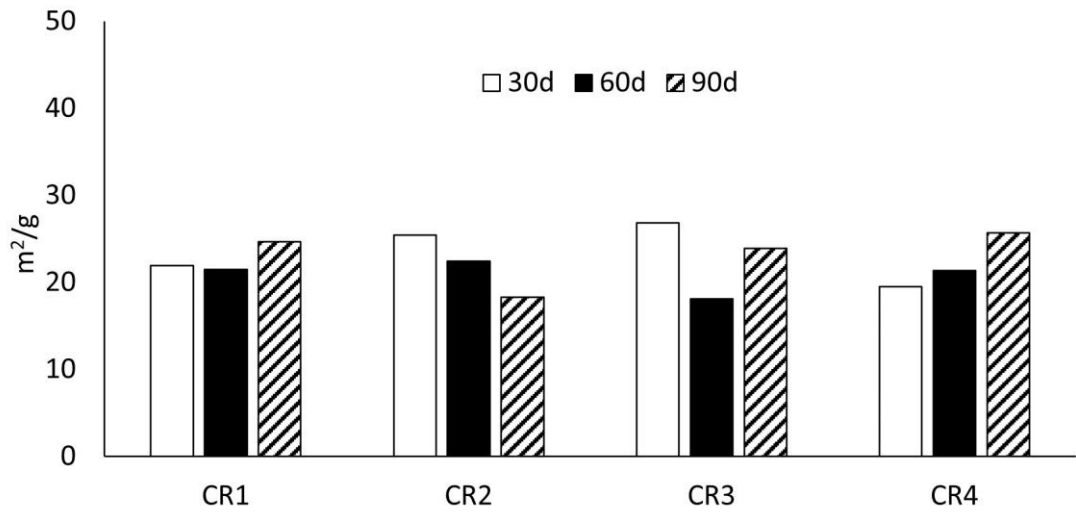
CFU (mL ⁻¹)	CRO1	CRO2	CRO3	CRO4	CR1	CR2	CR3	CR4
Culturable microorganisms	277,000	62,500	6850	9800	2800	8200	8150	8900
Total coliforms	272	336	19	254	15	103	16,5	3,5
Fecal coliforms	66.5	79	4	28	9	18.5	6	0.5
<i>E. coli</i>	11.5	25.5	1.5	6	7.5	0.5	0.5	0

Table S12. Chlorophyll a, chlorophyll b and chlorophyll c after 90 days of maturation

Peloid	Chlorophyll a					Chlorophyll b					Chlorophyll c				
	630	645	665	730	Chl a (mg L ⁻¹)	630	645	665	730	Chl b (mg L ⁻¹)	630	645	665	730	Chl c (mg L ⁻¹)
CR1	0.121	0.124	0.149	0.101	0.0193	0.121	0.124	0.149	0.101	0.0062	0.121	0.124	0.149	0.101	0.0086
	0.119	0.115	0.135	0.093	0.0168	0.119	0.115	0.135	0.093	0.0060	0.119	0.115	0.135	0.093	0.0146
	0.159	0.140	0.158	0.118	0.0159	0.159	0.14	0.158	0.118	0.0050	0.159	0.140	0.158	0.118	0.0282
CR2	0.301	0.150	0.175	0.100	0.0289	0.301	0.15	0.175	0.100	0.0040	0.301	0.150	0.175	0.100	0.1616
	0.298	0.156	0.189	0.101	0.0343	0.298	0.156	0.189	0.101	0.0056	0.298	0.156	0.189	0.101	0.1558
	0.279	0.148	0.183	0.097	0.0337	0.279	0.148	0.183	0.097	0.0044	0.279	0.148	0.183	0.097	0.1436
CR3	0.132	0.131	0.127	0.120	0.0024	0.132	0.131	0.127	0.120	0.0059	0.132	0.131	0.127	0.120	0.0073
	0.147	0.142	0.129	0.121	0.0022	0.147	0.142	0.129	0.121	0.0120	0.147	0.142	0.129	0.121	0.0170
	0.141	0.137	0.135	0.124	0.0040	0.141	0.137	0.135	0.124	0.0061	0.141	0.137	0.135	0.124	0.0120
CR4	0.101	0.088	0.094	0.080	0.0055	0.101	0.088	0.094	0.080	0.0013	0.101	0.088	0.094	0.080	0.0157
	0.090	0.088	0.093	0.084	0.0036	0.090	0.088	0.093	0.084	0.0007	0.090	0.088	0.093	0.084	0.0037
	0.107	0.090	0.096	0.082	0.0055	0.107	0.090	0.096	0.082	0.0009	0.107	0.090	0.096	0.082	0.0193
CRO1	0.201	0.183	0.144	0.105	0.0122	0.201	0.183	0.144	0.105	0.0427	0.201	0.183	0.144	0.105	0.0620
	0.196	0.239	0.185	0.115	0.0230	0.196	0.239	0.185	0.115	0.0732	0.196	0.239	0.185	0.115	0.0340
	0.189	0.196	0.193	0.124	0.0255	0.189	0.196	0.193	0.124	0.0351	0.189	0.196	0.193	0.124	0.0341
CRO2	0.301	0.276	0.221	0.184	0.0105	0.301	0.276	0.221	0.184	0.0517	0.301	0.276	0.221	0.184	0.0771
	0.298	0.278	0.204	0.176	0.0060	0.298	0.278	0.204	0.176	0.0607	0.298	0.278	0.204	0.176	0.0793
	0.279	0.259	0.204	0.167	0.0105	0.279	0.259	0.204	0.167	0.0522	0.279	0.259	0.204	0.167	0.0726
CRO3	0.292	0.312	0.191	0.106	0.0246	0.292	0.312	0.191	0.106	0.1228	0.292	0.312	0.191	0.106	0.1044
	0.287	0.307	0.196	0.103	0.0281	0.287	0.307	0.196	0.103	0.1198	0.287	0.307	0.196	0.103	0.1027
	0.291	0.281	0.226	0.137	0.0298	0.291	0.281	0.226	0.137	0.0777	0.291	0.281	0.226	0.137	0.0927
CRO4	0.200	0.263	0.182	0.163	0.0025	0.200	0.263	0.182	0.163	0.0691	0.200	0.263	0.182	0.163	0.0043
	0.201	0.269	0.185	0.160	0.0046	0.201	0.269	0.185	0.160	0.0745	0.201	0.269	0.185	0.160	0.0051
	0.190	0.239	0.180	0.159	0.00448	0.19	0.239	0.180	0.159	0.0540	0.190	0.239	0.180	0.159	0.0044

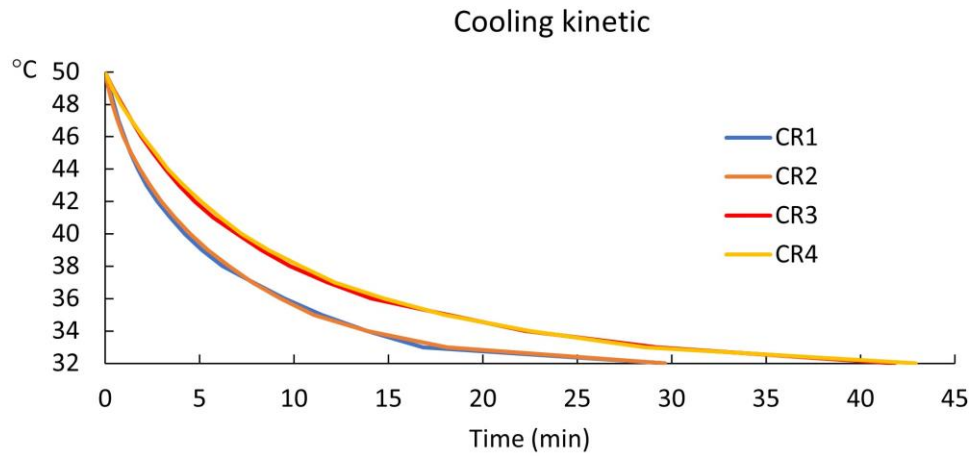


(a)

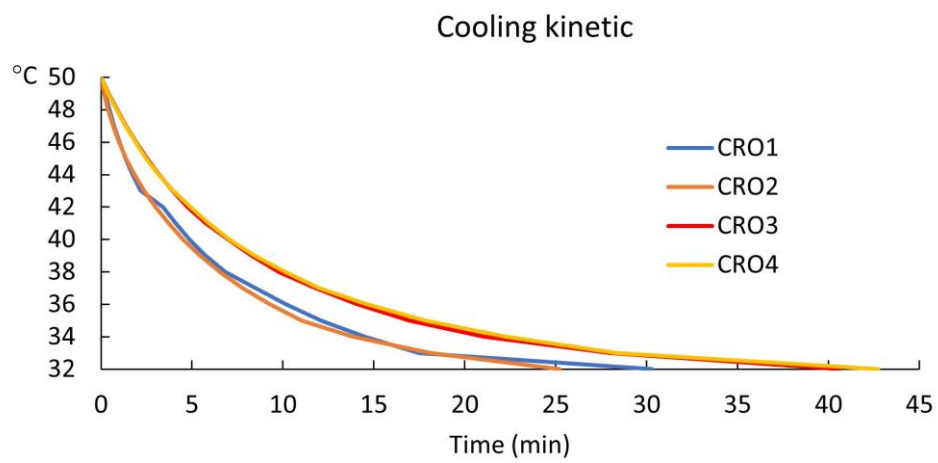


(b)

Fig. S1. Specific Surface Area (SSA) (m²/g): **a** Cró peloid, **b** Caldas da Rainha peloid



(a)



(b)

Fig. S2. The cooling kinetic of peloids after 90 days of maturation. **a** Caldas da Rainha peloid, **b** Cró peloid