

Supplementary Materials:

Table S1. Mean values (\pm standard deviations, n=3) of carbon (C), hydrogen (H), nitrogen (N), oxygen (O) and ash contents and C/N ratio of each feedstock (sewage sludge and *Cynara cardunculus* residuals) and hydrochar derived from them (respectively, Hs and Hc).

	Feedstock		Hydrochar	
	Sewage sludge	<i>C. cardunculus</i>	Hs	Hc
C (% d.w.)	33.2 (\pm 0.09)	42.4 (\pm 0.10)	30.6 (\pm 1.97)	61.8 (\pm 1.25)
H (% d.w.)	6.23 (\pm 0.14)	6.33 (\pm 0.71)	5.22 (\pm 0.20)	6.15 (\pm 0.28)
N (% d.w.)	1.73 (\pm 0.03)	0.67 (\pm 0.05)	0.79 (\pm 0.06)	1.08 (\pm 0.04)
O (% d.w.)	13.27 (\pm 0.81)	42.84 (\pm 1.75)	4.25 (\pm 0.65)	12.7 (\pm 1.76)
Ash (% d.w.)	45.6 (\pm 0.31)	7.74 (\pm 0.38)	59.2 (\pm 2.49)	18.3 (\pm 3.33)
C/N	19.2 (\pm 0.40)	63.7 (\pm 6.51)	38.7 (\pm 0.65)	57.3 (\pm 0.98)

Table S2. Average values (\pm standard deviation) of water holding capacity (WHC), bulk density (BD), porosity (Po), pH, electrical conductivity (EC), cation exchange capacity (CEC), organic C content (C_{org}), total nitrogen (N) of the soil used for the experiments.

WHC (%)	41.5 (\pm 3.08)
BD (g cm⁻³)	1.53 (\pm 0.12)
Po (%)	42.3 (\pm 4.48)
pH	5.86 (\pm 0.06)
EC (μS cm⁻¹)	262 (\pm 18.7)
CEC (cmol kg⁻¹)	14.4 (\pm 0.71)
C_{org} (g kg⁻¹)	29.4 (\pm 4.10)
N (g kg⁻¹)	0.19 (\pm 0.02)