Biochar amendment for improved and more sustainable peat stabilisation

Supplementary information

1. Supplementary figures

Figure S1. Biomass used to produce biochar. Source: Sørmo et al. (2020).

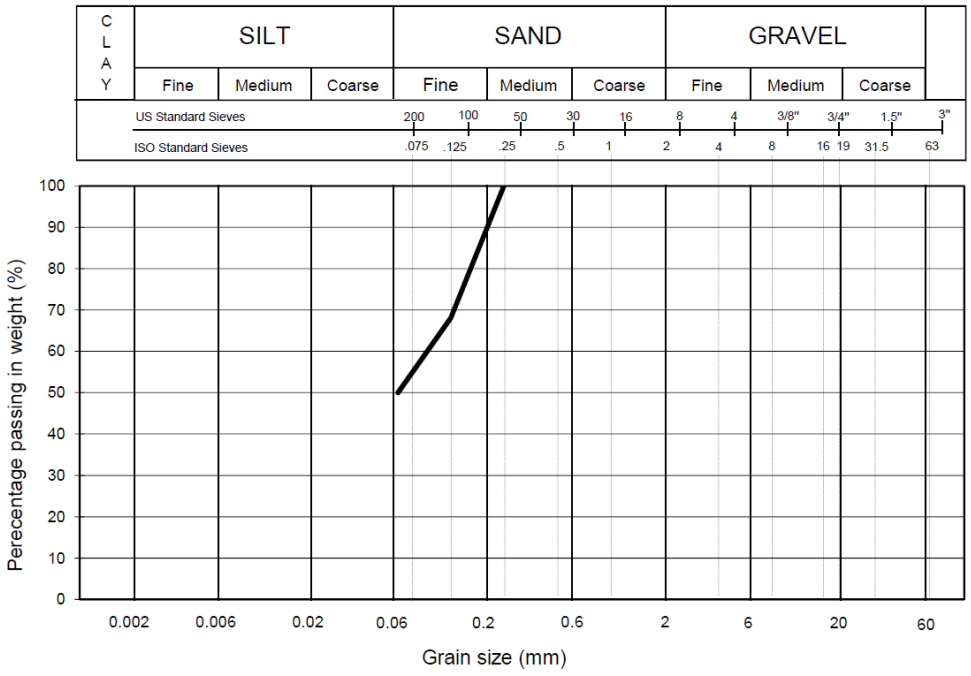

Figure S2. Particle size distribution of the biochar processed for peat stabilisation according to NS-EN 17892-4:2016.

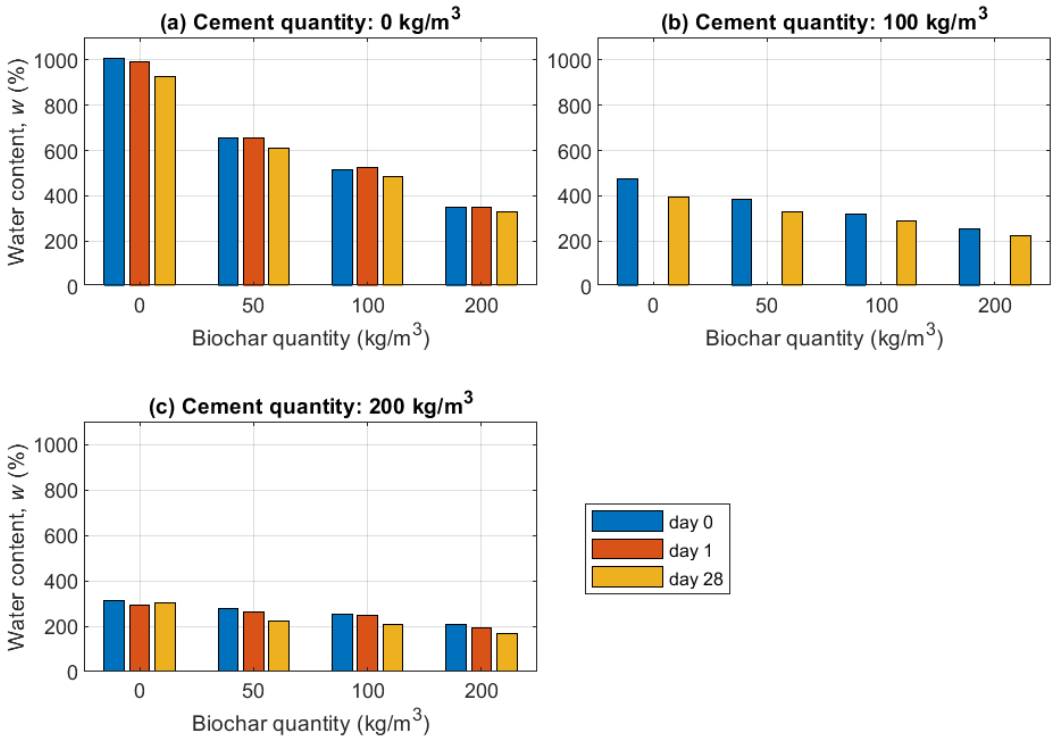

Figure S3. Change of water content in peat samples with curing time (0, 1 and 28 days). The water content at day 1 was not determined for the samples with a cement quantity of 100 kg/m^3.

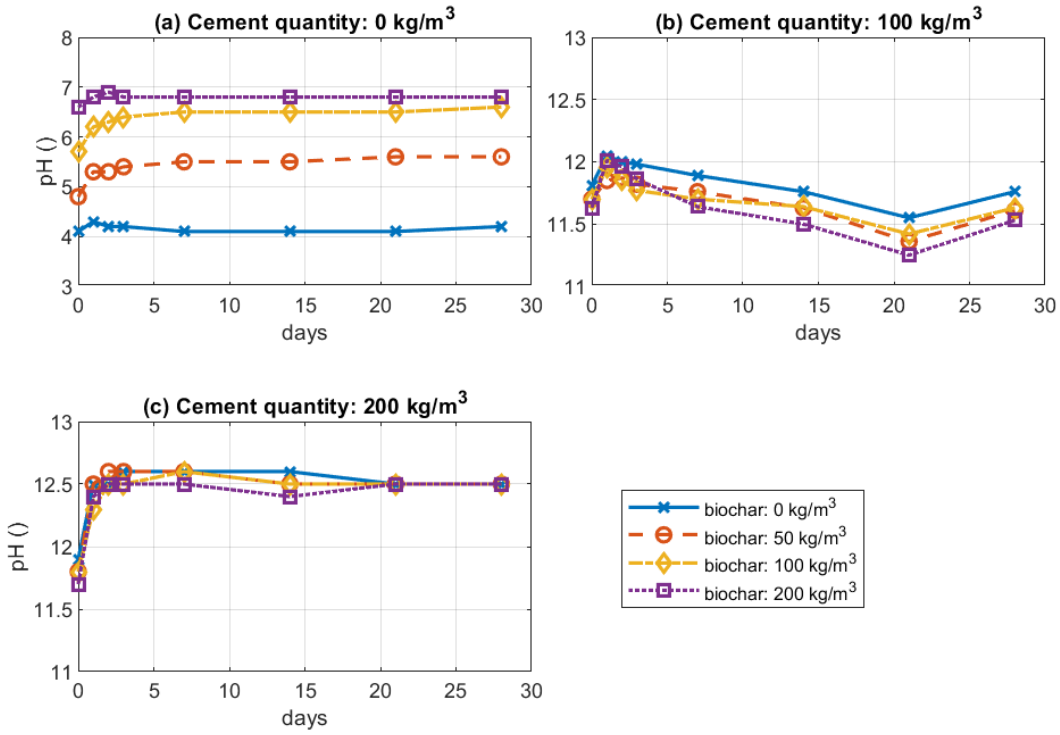

Figure S4. pH values with curing time for the peat samples.

2. Supplementary table

Table S1. Standard biochar properties according to the European Biochar Certificate (EBC) guidelines*. Source: Sørmo et al. (2020).

Parameter	Unit	Clean wood and leave biochar	EBC Threshold values
Density (bulk)	kg/m^3	229	
Density (actual)	g/cm^3	1.58	
BET-N2 surface (>1.5 nm)	m^2/g	287	
CO2 surface (0.3-1.5 nm)	m^2/g	453	
Porosity (pores 0.3-1.5 nm)	%	12.6	
Ash (550 °C)	%	14.3	
Hydrogen	%	2.35	
Carbon	%	78.9	> 50
Nitrogen	%	1.15	
Oxygen	%	3.3	
Inorganic carbon	%	1.2	
Organic carbon	%	77.7	
H/C molar		0.35	< 0.6
H/Corganic		0.36	< 0.7
O/C molar		0.031	< 0.4
Total sulfur (S)	%	0.03	
pH (CaCl2)		8.6	< 10
Conductivity	µS/cm	822	
Salt content	g/kg	5.55	
Phosphorus (P)	%	0.2	
Magnesium (Mg)	%	0.3	
Calcium (Ca)	%	3.5	
Potassium (P)	%	1.0	
Sodium (Na)	%	0.05	
Iron (Fe)	%	0.11	
Silicone (Si)	%	1.1	
TGA*	T (°C)*	320	

*TGA: thermogravimetric analysis. T is temperature where maximal weight loss is achieved – a way to determine maximum charring temperature.

* EBC, "European Biochar Certificate - Guidelines for a Sustainable Production of Biochar," Arbaz, Switzerland, 2012.