SUPPLEMENTARY MATERIALS

Exopolysaccharides in biological soil crusts are important contributors to carbon and nutrient storage after the restoration of inland sand dunes

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Table S1. Descriptive statistics on organic C content, and exchangeable K and Ca concentrations in BSC samples collected from different stages of succession. The data were retrieved from Chowaniec et al. (2024a). Organic C content was determined using a RC-612 dry combustion analyzer (Leco, USA; ISO 10694: 1995). Exchangeable K and Ca concentrations were determined after sample digestion in a suprapure $HClO_4$ (1:20, w:v; Digestor 40 Auto; Foss Tecator, Sweden) and shaking in 0.1 $BaCl_2$ (PN-EN ISO 11260: 2011); the concentrations were measured using a fast sequential atomic absorption spectrometer 280 (Varian, Australia). For further details see Chowaniec et al. (2024a).

Stage of succession	Mean	SD	Minimum	Maximum
	Organic C content (%)			
Initial	0.57	0.28	0.19	1.01
Middle	3.48	1.32	1.62	5.52
Late	4.87	2.08	1.70	6.82
	Exchangable K (mg kg^{-1})			
Initial	22.97	7.32	17.61	35.10
Middle	45.16	15.82	27.37	71.03
Late	67.01	33.30	15.11	117.30
	Exchangable Ca (mg kg^{-1})			
Initial	13.85	6.25	8.10	27.43
Middle	83.99	76.70	24.73	266.10
Late	146.22	78.23	13.11	268.14

Chowaniec K, Zubek S, Zalewska-Gałosz J, Stanek M, Skubała K (2024a) Mosaic of biological soil crusts and vascular plants contributes to the spatial heterogeneity of key soil properties at different successional stages of restored inland sand dunes. Plant Soil. https://doi.org/10.1007/s11104-024-06941-y

Table S2. The formulas used to calculate chlorophyll concentrations (according to Caesar et al. 2018).

Parameter	Formula
The total amount of chl *a* + *b* in a sample	$\text{Chl } a + b\ (\mu g) = [(A_{665} - A_{700}) \times 8.02 + (A_{648} - A_{700}) \times 20.2] \times DF \times S$
Chl *a* + *b* concentration on a surface area	$\text{Chl } a\ +\ b\ (mg \times m^{-2}) = \frac{\text{Chl } a+b\ (\mu g)}{\text{AR} \times 1000}$
Chl *a* + *b* concentration on dry weight	$\text{Chl } a\ +\ b\ (\mu g \times g^{-1}) = \frac{\text{Chl } a+b\ (\mu g)}{DW}$
Total chl *a* amount n in a sample	$\text{Chl } a\ (\mu g) = [(A_{665} - A_{700}) \times 12.19] \times DF \times S$
Chl *a* concentration based on a surface area	$\text{Chl } a\ (mg \times m^{-2}) = \frac{\text{Chl } a\ (\mu g)}{\text{AR} \times 1000}$
Chl *a* concentration based on dry weight	$\text{Chl } a\ (\mu g \times g^{-1}) = \frac{\text{Chl } a\ (\mu g)}{DW}$

A_x = absorbance at certain wavelength, DF = dilution factor, S = amount of DMSO (ml), AR = area (m^{-2}), DW = dry weight (g).

Caesar J, Kratz A, Ruckteschler N, Leifke AL, Weber B (2018) Revisiting chlorophyll extraction methods in biological soil crusts – Methodology for determination of chlorophyll a and chlorophyll a + b as compared to previous methods. Biogeosciences 15:1415–1424. https://doi.org/10.5194/bg-15-1415-2018.