

Supplemental

Table S1

ANOVA results (P values) of the compound class proportions (% TII (Total Ion Intensity)) of organic soil matter determined with Py-FIMS in the catenae Vindum, Rostock, Rogalow and Pikareinu on the shoulder-, back-, and footslope position at a soil depth of 0–30 cm and 30–60 cm. Significant effects are indicated by $P < 0.05$, $P < 0.01$, and $P < 0.001$ ($n = 3$) (df Error = 49).

SOM compound class	Site (S) (df=3)	Soil depth (D) (df=1)	Slope position (P) (df=2)	S x D (d f = 3)	S x P (df = 6)	P x D (df = 2)	S x P x D (df = 6)
Carbohydrates	<0.001	<0.001	<0.001	<0.001	<0.001	0.195	<0.001
Phenols + lignin monomers	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001
Lignin dimers	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lipids ¹	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Alkylaromatics	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-compounds ²	<0.001	0.157	<0.001	<0.001	<0.001	0.209	<0.001
Sterols	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Amides ³	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Suberin	<0.01	0.07	<0.001	0.132	<0.05	<0.05	0.111
Free fatty acids ⁴	<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001

¹ lipids: alkanes, alkenes, alkanolic acids, alkyl ester

² N-containing compounds: aromatic N-heterocyclic compounds and nitriles

³ Amides: nonaromatic amides (peptides, amino sugars) and free amino acids

⁴ Free fatty acids: n -alkanoic acids from n -C₁₆ to n -C₃₄