**Supplementary Materials**

Table S1. Summary of correlation matrix of PCA performed on soil physical chemical properties. The impact of soil physical chemical on soil biota in soil samples collected in August. Highlighted (bold) values are statistically significant p<0.05.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | BD |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BD | 1 | SWC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SWC | -0.17 | 1 | pH |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| pH | 0.53 | -0.39 | 1 | EC F |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EC F | -0.12 | -0.27 | 0.51 | 1 | EC L |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EC L | 0.17 | -0.27 | **0.8** | **0.61** | 1 | P |  |  |  |  |  |  |  |  |  |  |  |  |
| P | 0.09 | 0.15 | -0.44 | -0.53 | -0.35 | 1 | NO3 |  |  |  |  |  |  |  |  |  |  |  |
| NO3 | -0.1 | -0.34 | **0.65** | **0.7** | **0.94** | -0.32 | 1 | NH4 |  |  |  |  |  |  |  |  |  |  |
| NH4 | 0.22 | -0.31 | 0.02 | 0.13 | 0.02 | -0.48 | -0.06 | 1 | N |  |  |  |  |  |  |  |  |  |
| N | **-0.84** | 0.04 | **-0.69** | -0.21 | -0.44 | -0.03 | -0.16 | -0.05 | 1 | C |  |  |  |  |  |  |  |  |
| C | **-0.7** | -0.15 | **-0.68** | -0.29 | -0.52 | 0.06 | -0.25 | 0.05 | **0.95** | 1 | C:N |  |  |  |  |  |  |  |
| C:N | **0.73** | -0.53 | 0.4 | 0 | 0.06 | 0.21 | -0.08 | 0.23 | **-0.61** | -0.33 | 1 | BAC |  |  |  |  |  |  |
| BAC | **-0.74** | 0.11 | -0.25 | 0.37 | 0.21 | -0.07 | 0.45 | -0.3 | 0.51 | 0.33 | **-0.66** | 1 | ACT |  |  |  |  |  |
| ACT | -0.4 | 0.14 | -0.12 | 0.33 | 0.23 | 0.22 | 0.41 | -0.52 | 0.17 | -0.01 | -0.49 | **0.84** | 1 | SAP |  |  |  |  |
| SAP | -0.24 | -0.01 | 0.48 | **0.6** | **0.84** | -0.34 | **0.88** | -0.1 | -0.12 | -0.27 | -0.29 | **0.6** | 0.49 | 1 | AMF |  |  |  |
| AMF | -0.23 | -0.11 | -0.07 | 0.08 | -0.04 | -0.52 | -0.05 | 0.48 | 0.18 | 0.2 | -0.09 | 0.22 | -0.16 | 0.23 | 1 | MEK |  |  |
| MEK | -0.32 | -0.22 | 0.03 | 0.37 | 0.37 | -0.35 | 0.45 | 0.4 | 0.17 | 0.16 | -0.11 | 0.56 | 0.23 | **0.64** | **0.77** | 1 | SFA |  |
| SFA | **-0.63** | 0.02 | -0.1 | 0.41 | 0.3 | -0.32 | 0.47 | -0.02 | 0.38 | 0.24 | -0.53 | **0.89** | **0.62** | **0.71** | **0.6** | **0.83** | 1 | F:B |
| F:B | -0.02 | -0.19 | 0.24 | 0.18 | 0.24 | **-0.6** | 0.15 | 0.55 | -0.07 | -0.03 | 0.09 | 0.01 | -0.34 | 0.37 | **0.92** | **0.74** | 0.46 | 1 |

Correlation matrix: Initials used are soil bulk density (BD), soil water content (SWC), field soil electrical conductivity (EC F), Laboratory soil electrical conductivity (EC L), Phosphorous (P), Nitrates (NO3), Ammonium (NH4), Nitrogen (N), Carbon (C), ration of carbon to nitrogen (C:N), Bacteria (BAC) , actinomycetes (ACT), Saprophytic fungi (SAP), Arbuscular mycorrhizae (AMF), Micro-eukaryotes (MEK), sum of microbial fatty acids (SFA) and ratio of fungi to bacteria (F:B)

Table S2. Summary of correlation matrix of PCA performed on soil physical chemical properties. The impact of soil physical chemical on soil biota in soil samples collected in October. Highlighted (bold) values are statistically significant p<0.05.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | BD |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BD | 1 | SWC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SWC | -0.8 | 1 | pH |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| pH | 0.53 | -0.53 | 1 | EC F |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EC F | -0.12 | -0.08 | 0.51 | 1 | EC L |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EC L | 0.17 | -0.15 | **0.8** | **0.61** | 1 | P |  |  |  |  |  |  |  |  |  |  |  |  |
| P | 0.09 | 0.14 | -0.44 | -0.53 | -0.35 | 1 | NO3 |  |  |  |  |  |  |  |  |  |  |  |
| NO3 | -0.1 | 0.09 | 0.65 | **0.7** | **0.94** | -0.32 | 1 | NH4 |  |  |  |  |  |  |  |  |  |  |
| NH4 | 0.22 | -0.12 | 0.02 | 0.13 | 0.02 | -0.48 | -0.06 | 1 | N |  |  |  |  |  |  |  |  |  |
| N | **-0.84** | **0.77** | **-0.69** | -0.21 | -0.44 | -0.03 | -0.16 | -0.05 |  | C |  |  |  |  |  |  |  |  |
| C | **-0.7** | **0.69** | **-0.68** | -0.29 | -0.52 | 0.06 | -0.25 | 0.05 | **0.95** | 1 | C:N |  |  |  |  |  |  |  |
| C:N | **0.73** | -0.57 | 0.4 | 0 | 0.06 | 0.21 | -0.08 | 0.23 | **-0.61** | -0.33 | 1 | BAC |  |  |  |  |  |  |
| BAC | -0.19 | 0.09 | 0.12 | 0.41 | 0.15 | -0.35 | 0.2 | 0.05 | 0.02 | -0.13 | -0.36 | 1 | ACT |  |  |  |  |  |
| ACT | 0.2 | -0.29 | 0.27 | 0.31 | 0.11 | -0.09 | 0.08 | -0.16 | -0.32 | -0.41 | -0.05 | **0.84** | 1 | SAP |  |  |  |  |
| SAP | 0.38 | -0.45 | 0.58 | 0.41 | 0.51 | -0.47 | 0.4 | 0.35 | -0.48 | -0.48 | 0.23 | 0.53 | 0.46 | 1 | AMF |  |  |  |
| AMF | 0.44 | -0.46 | -0.07 | -0.22 | -0.39 | -0.1 | **-0.61** | 0.2 | -0.39 | -0.42 | 0.05 | 0.09 | 0.27 | 0.09 | 1 | MEK |  |  |
| MEK | 0.35 | -0.37 | 0.2 | 0.23 | -0.12 | -0.27 | -0.22 | 0.06 | -0.39 | -0.45 | 0.02 | **0.59** | **0.72** | 0.43 | **0.74** | 1 | SFA |  |
| SFA | 0.21 | -0.3 | 0.2 | 0.26 | 0.03 | -0.37 | -0.08 | 0.18 | -0.32 | -0.43 | -0.14 | **0.84** | **0.83** | **0.63** | 0.59 | **0.88** | 1 | F:B |
| F:B | 0.61 | -0.62 | 0.1 | -0.25 | -0.21 | -0.14 | -0.48 | 0.33 | -0.53 | -0.47 | 0.32 | -0.26 | -0.09 | 0.21 | **0.86** | 0.48 | 0.3 | 1 |

Initials used are soil bulk density (BD), soil water content (SWC), field soil electrical conductivity (EC F), Laboratory soil electrical conductivity (EC L), Phosphorous (P), Nitrates (NO3), Ammonium (NH4), Nitrogen (N), Carbon (C), ration of carbon to nitrogen (C:N), Bacteria (BAC), Actinomycetes (ACT), saprophytic fungi (SAP), Arbuscular mycorrhizae (AMF), Microeukaryotes (MEK), sum of microbial fatty acids (SFA) and ratio of fungi to bacteria (F:B)