



Soil Microbial Ecology Report

Nature of soil sample: From the 10-cm deep rhizosphere of Cedar tree (*Thuja occidentalis*).

Place of soil collection: Public green area in Québec city, QC, Canada.

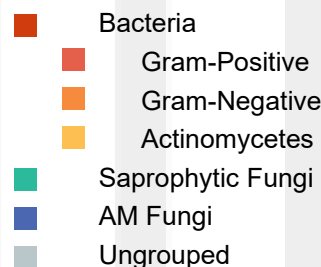
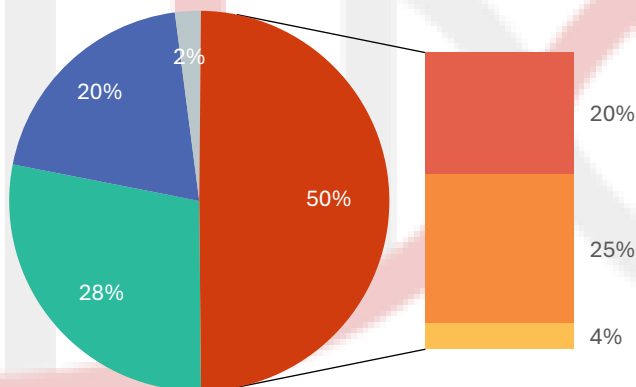
Date of soil collection: November 24, 2025 (upper layer of soil was covered by snow).

Distribution of microbial groups

Biomass PLFA of microbial groups

Relative abundances

Total Viable Biomass PLFA (Total PLFA/g soil):	222.0	pmol/g
Bacteria:	110.9	pmol/g
Gram-Positive Bacteria	45.0	pmol/g
Gram-Negative Bacteria	56.5	pmol/g
Actinomycetes	9.4	pmol/g
Fungi	106.3	pmol/g
Saprophytic (SF)	62.4	pmol/g
Arbuscular Mycorrhizal (AMF)	43.9	pmol/g
Ungrouped	4.9	pmol/g



Diversity and Ecological Ratios and Physiological (Stress) Indicators

Ratio	Value	Reference ranges (approximate and context dependent)
Bacterial Stress (cyFA/precursors)	0.15	Healthy/Active growth < 0.1 - 0.5 < Stress/Starvation
Gram Positive:Gram Negative	0.80	High availability of carbon < 1.0 - 2.0 < Starvation
Total Fungi:Total Bacteria ratio	0.96	Stressed < 0.1 - 0.4 < Healthy
AMF: Saprophytic fungi	0.70	A higher value indicates a higher symbiotic than decomposer fungi
Saturated: Unsaturated PLFA Ratio	0.38	Flooding/Cold < 0.5 - 1.5 < Drought/Heat
Mono:Poly Unsaturated PLFA Ratio	8.36	Saprophytic fungi dominant < 1 < Bacteria/AMF dominant
Shannon-Weaver Diversity index (H')	2.37	Low diversity < 1.5 - 2.5 < High diversity
Pielou's Evenness Index (J')	0.79	The closer the value is to 1 the higher is evenness of microbial groups across different PLFAs

Quebec, 12 December 2025