

Table S1: Average percent recoveries (\pm standard deviation) of four antibiotics extracted from different soil matrices using different pre-processing techniques, extraction solutions, and extraction methods.

Matrix ^{†‡}	Pre-Processing Steps		Extraction Procedure		Antibiotic Recoveries (%)			
	Ground	Freeze Dry [§]	ASE vs. Batch	Extraction Solution	SMX	TMP	LIN	OFL
Bulk Soil	NO	NO	ASE	ACN/H ₂ O (50/50)	92 \pm 6	35 \pm 7	31 \pm 5	0
			Batch		73 \pm 11	15 \pm 4	0	0
			ASE	MeOH	81 \pm 8	40 \pm 2	32 \pm 1	0
			Batch		34 \pm 6	25 \pm 2	0	0
			ASE	FA (0.1%)	0	28 \pm 2	43 \pm 4	0
			Batch		0	2 \pm 0.2	32 \pm 3	0
			ASE	MeOH/H ₂ O (20/80)	79 \pm 13	34 \pm 6	31 \pm 6	0
			Batch		42 \pm 2	10 \pm 0.4	0	0
Soil A	YES	YES	ASE	ACN/H ₂ O (v/v, 50/50) pH 2.8	40 \pm 8	89 \pm 16	39 \pm 7	2 \pm 1
		NO			24 \pm 3	41 \pm 10	84 \pm 15	2 \pm 2
Soil B	YES	YES			6 \pm 2	55 \pm 8	24 \pm 6	1 \pm 0.4
		NO			0	37 \pm 11	55 \pm 17	0
Soil C	YES	YES			22 \pm 4	65 \pm 14	41 \pm 7	2 \pm 1
		NO			11 \pm 7	58 \pm 6	83 \pm 4	18 \pm 9
Soil D	YES	YES			13 \pm 2	66 \pm 9	13 \pm 2	2 \pm 1
		NO			11 \pm 2	46 \pm 6	35 \pm 4	10 \pm 5

[†] Bulk Soil – agricultural silt loam (Ap Horizon); Soil A – agricultural silt loam (Ap Horizon); Soil B – agricultural loam (B Horizon); Soil C – forested loam (A Horizon); Soil D – forested loam (B Horizon)

[‡] Soils A, B, C, and D were air dried and ground before being equilibrated with spiked antibiotic solution

[§] Freeze-drying occurred after equilibration with spiked antibiotic solution to allow long-term storage prior to ASE analysis.