

Supplementary Material

Table S1. Relative abundances of the 15 top dominant bacterial taxa in different soil samples.

	Control (%)	M_Bulk (%)	M_Rhizosphere (%)	WIM_Bulk (%)	WIM_Rhizosphere (%)
Proteobacteria	50.03±7.95b	40.39±0.80c	61.70±3.47a	41.36±1.22bc	62.03±1.28a
Bacteroidota	11.48±3.06ab	11.79±2.92a	8.31±0.51abc	7.13±1.35bc	6.74±0.70cc
Gemmatimonadota	10.85±1.55a	11.08±1.00a	2.96±0.54b	11.51±1.44a	2.60±0.45b
Acidobacteriota	5.17±1.93b	8.88±1.21a	3.21±0.30b	10.58±2.17a	3.22±0.45b
Planctomycetota	5.29±0.64c	6.56±0.59b	3.99±0.16d	7.54±0.17a	4.85±0.34cd
Chloroflexi	3.79±0.51ab	4.73±0.65a	3.29±0.66b	4.82±0.47a	3.09±0.10b
Actinobacteriota	2.44±0.80b	1.27±0.13b	4.56±1.30a	1.30±0.31b	5.33±0.68a
Verrucomicrobiota	1.21±0.35c	1.58±0.28bc	3.05±0.23a	1.90±0.06b	3.52±0.43a
Myxococcota	2.31±0.48b	2.75±0.15ab	0.85±0.04c	2.98±0.30a	0.96±0.17c
Methylomirabilota	1.10±0.57b	1.52±0.26ab	1.19±0.37b	2.19±0.33a	1.37±0.21ab
NB1-j	1.08±0.18ab	1.29±0.30a	0.83±0.12b	1.34±0.26a	0.70±0.01b
Firmicutes	0.14±0.11b	0.11±0.03b	1.18±0.31a	0.14±0.03b	0.95±0.33a
Nitrospirota	0.37±0.13b	0.70±0.07a	0.28±0.04b	0.95±0.20a	0.29±0.04b
Cyanobacteria	0.58±0.30ab	1.23±0.90a	0.28±0.02ab	0.12±0.08b	0.31±0.14ab
Enttheonellaeota	0.18±0.07c	0.35±0.11bc	0.55±0.07a	0.28±0.08bc	0.41±0.05ab

The values indicate the means of three replicates (\pm SD) and different lowercase letters in each column meant significant differences among different treatments (detected by Kruskal–Wallis test, $P < 0.05$). M, plastic mulching; WIM, the combination of freezing saline water irrigation and plastic mulching.