

Impact of engineered silver and zinc oxide nanoparticles on bacterial communities influencing soil health

Supplementary Material

Table S1: XRD data of ZnO ENPs- Crystallite size (nm) of nano ZnO.

Diffraction peaks (<i>h,k,l</i>)	Angle (°2θ)		FWHM (°2θ)		d-spacing (Å)		Crystallite Size (nm) of nano ZnO
	Bulk ZnO	Nano ZnO	Bulk ZnO	Nano ZnO	Bulk ZnO	Nano ZnO	
(100)	31.7576	31.6944	0.0816	0.1000	2.81539	2.82320	143
(002)	34.4092	34.3356	0.0816	0.3568	2.60426	2.61183	24
(101)	36.2412	36.1673	0.0816	0.1007	2.47670	2.48365	142
(102)	47.5270	47.4107	0.0816	0.1557	1.91159	1.91759	65
(110)	56.5826	56.4213	0.1020	0.3990	1.62526	1.63087	23
(103)	62.8437	62.8429	0.0816	0.4065	1.47755	1.47879	23
(112)	67.9336	67.8963	0.1020	0.5843	1.37870	1.38051	17

Figure S1: Characterization of silver ENPs :(a) TEM of silver ENPs; (b) UV-visible spectrum of silver ENPs.

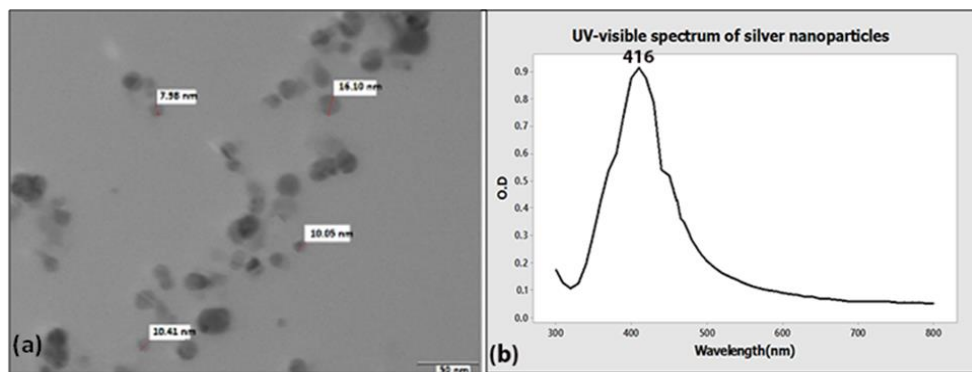


Figure S2: Characterization of zinc oxide ENPs: (a) XRD patterns of ZnO ENPs; (b) UV-visible spectrum of zinc oxide ENPs.

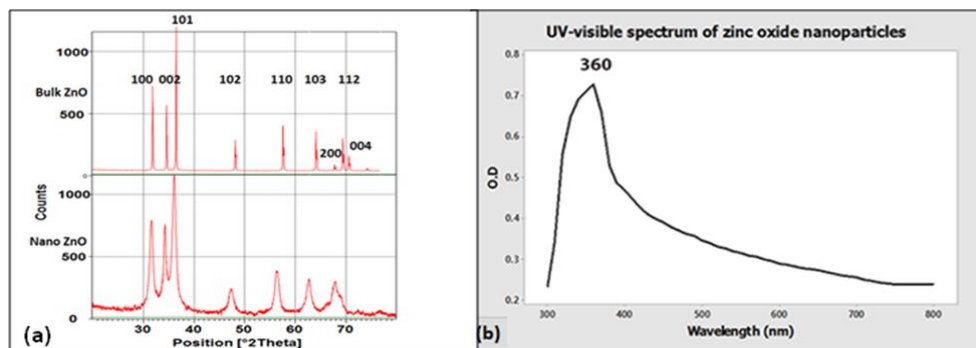
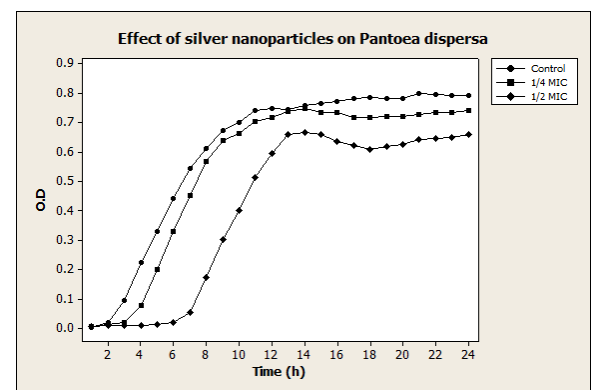
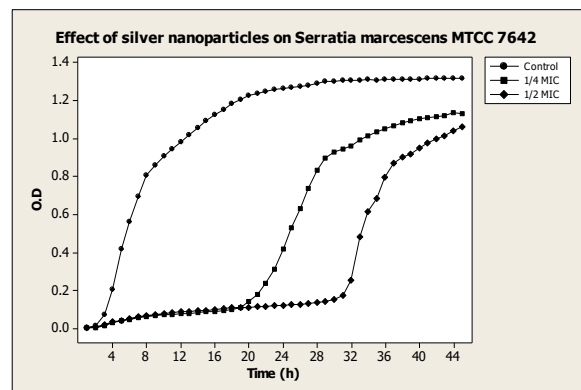
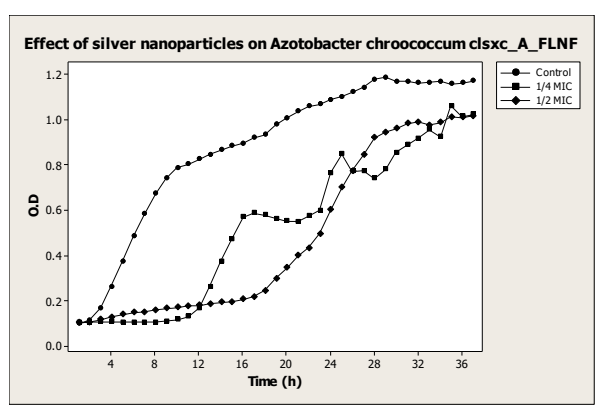
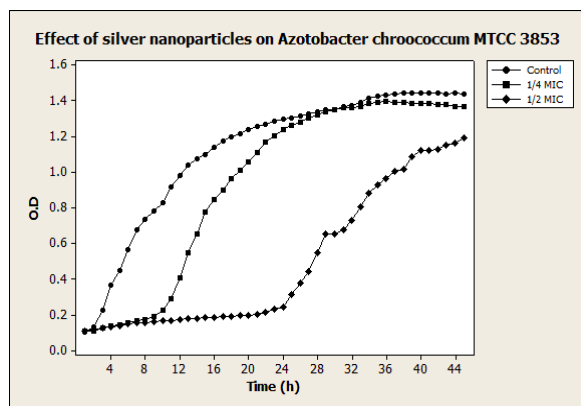
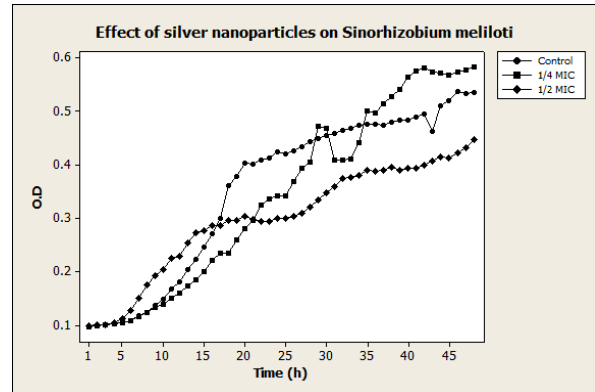
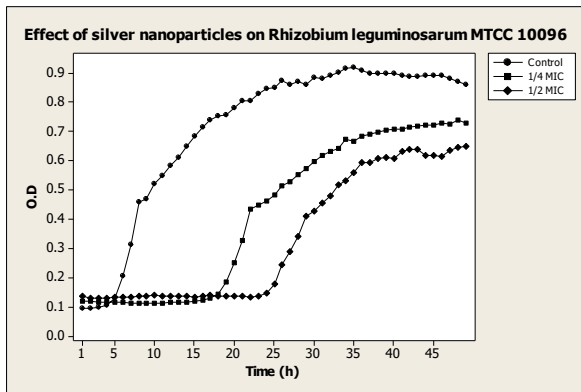
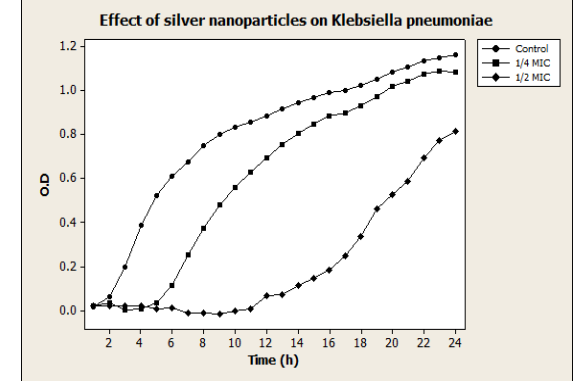
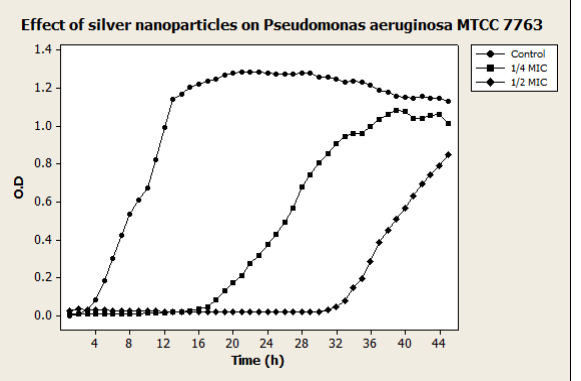
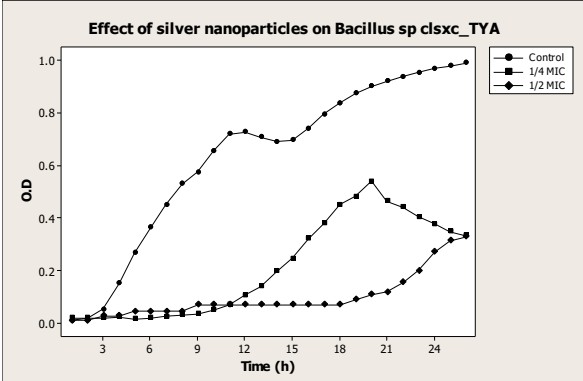
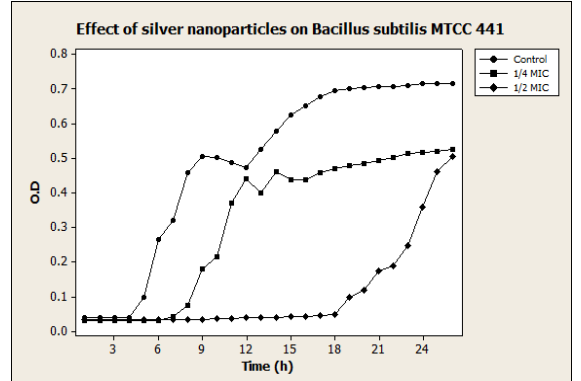
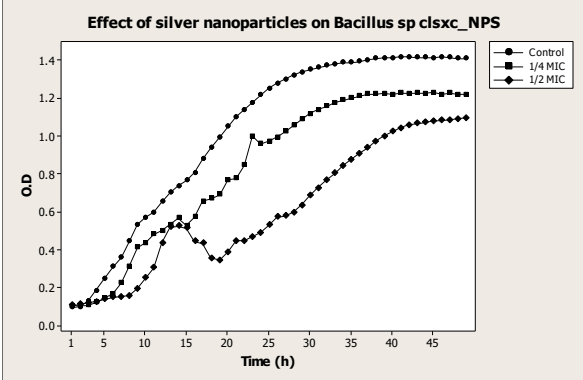
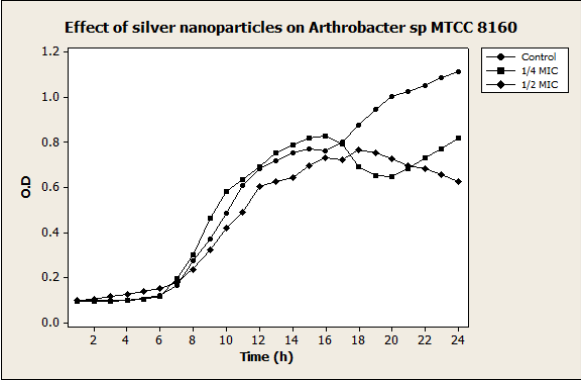


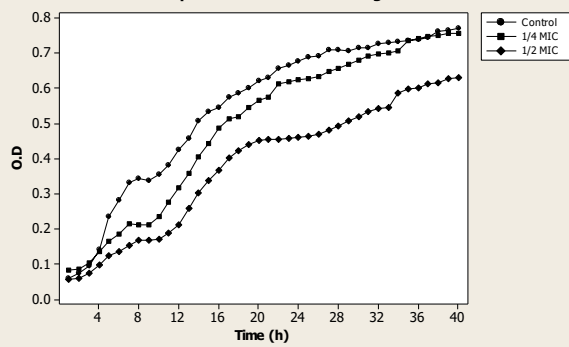
Figure S3: Growth response of isolates to Ag and ZnO ENPs (sub-MIC)

* *Azotobacter* sp is *Azotobacter chroococcum* clxxc_A_FLNF

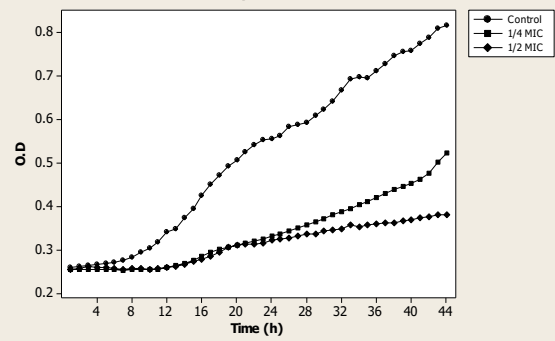




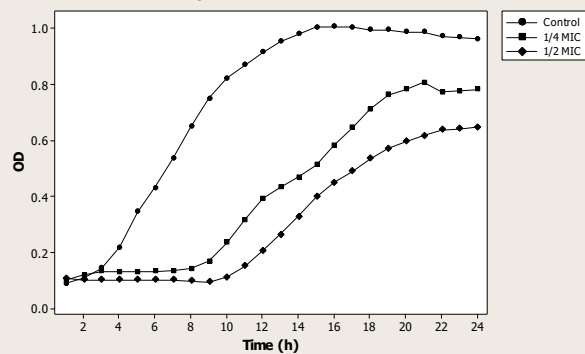
Effect of zinc oxide nanoparticles on *Rhizobium leguminosarum* MTCC 10096



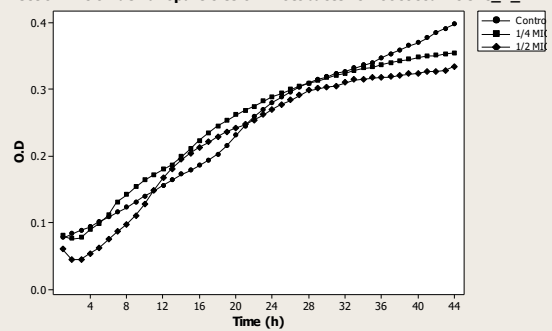
Effect of zinc oxide nanoparticles on *Sinorhizobium meliloti*



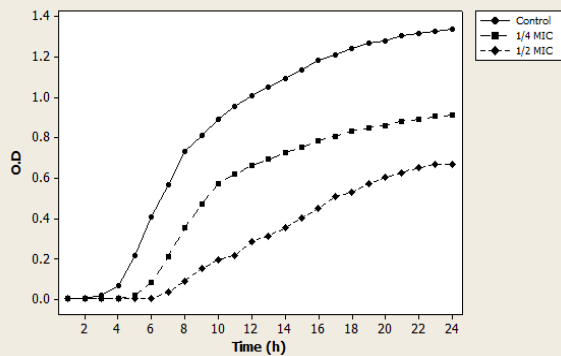
Effect of zinc oxide nanoparticles on *Azotobacter chroococcum* MTCC 3853



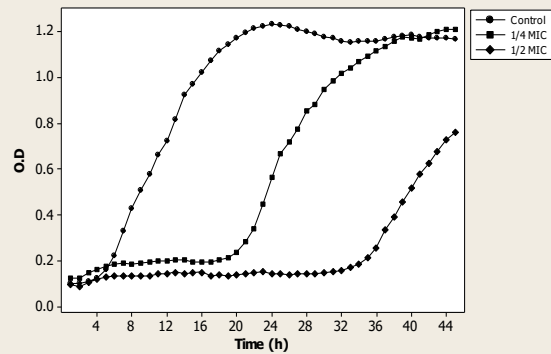
Effect of zinc oxide nanoparticles on *Azotobacter chroococcum* clxsc_A_FLNF



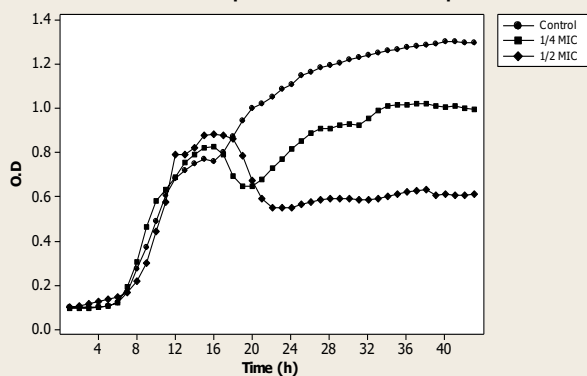
Effect of zinc oxide nanoparticles on *Serratia marcescens* MTCC 7642



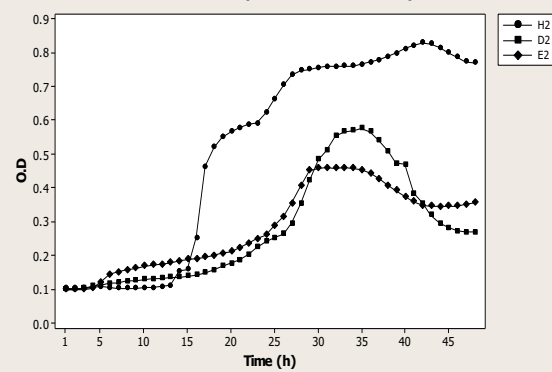
Effect of zinc oxide nanoparticles on *Pantoea dispersa*



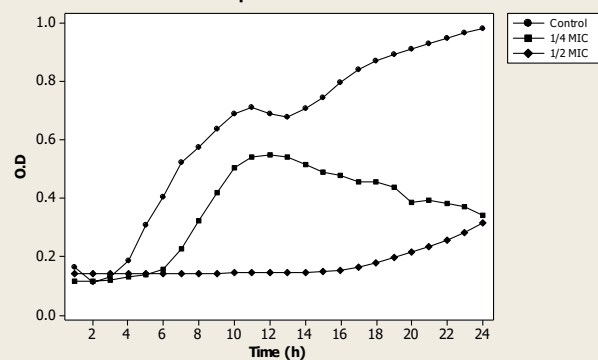
Effect of zinc oxide nanoparticles on *Arthrobacter* sp MTCC 8160



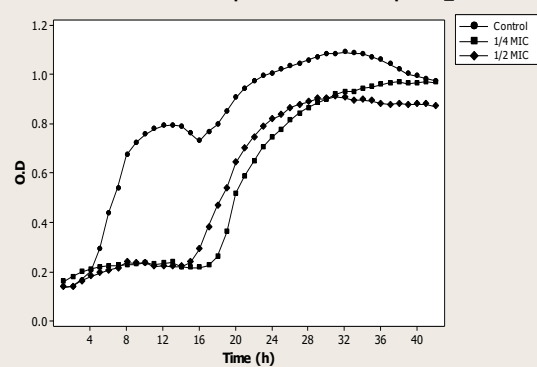
Effect of zinc oxide nanoparticles on *Bacillus* sp clxsc_NPS



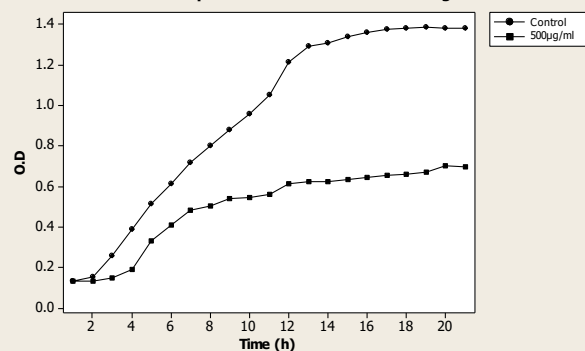
Effect of zinc oxide nanoparticles on *Bacillus subtilis* MTCC 7763



Effect of zinc oxide nanoparticles on *Bacillus* sp clscx_TYA



Effect of zinc oxide nanoparticles on *Pseudomonas aeruginosa* MTCC 7763



Effect of zinc oxide nanoparticles on *Klebsiella pneumoniae*

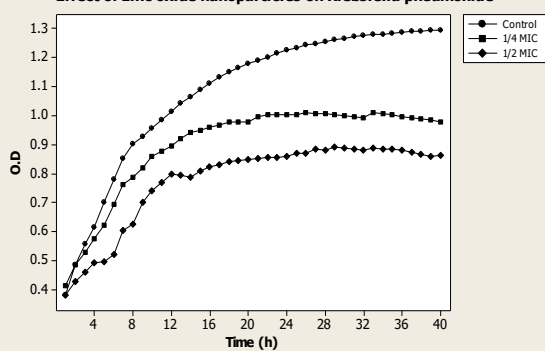
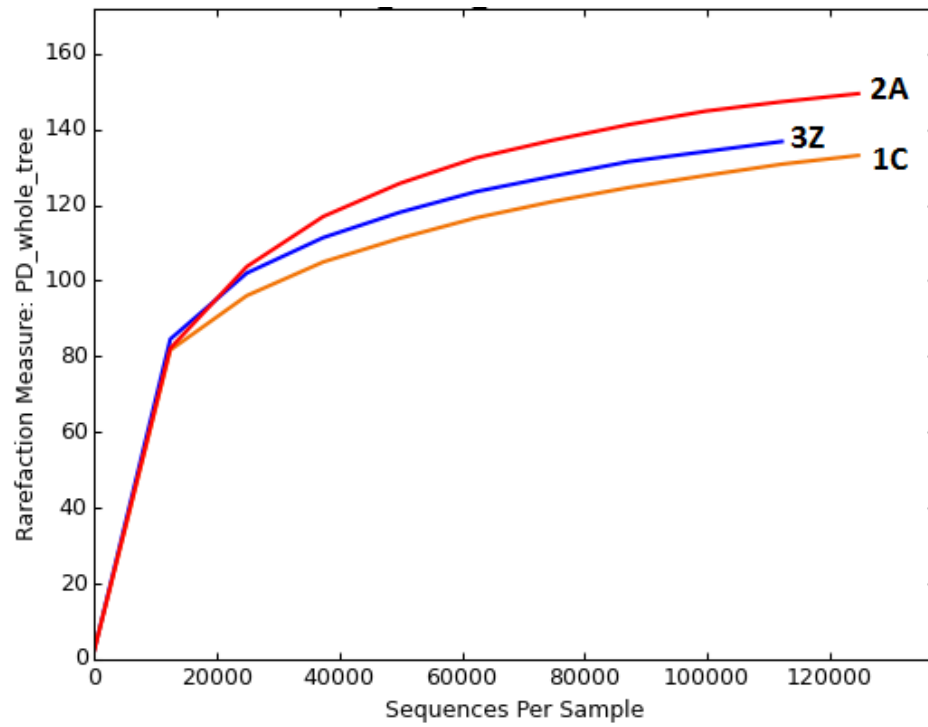


Figure S4: Rarefaction curves of alpha diversity indices. (a) PD_whole_tree curve and (b) Shannon curve

(a)



(b)

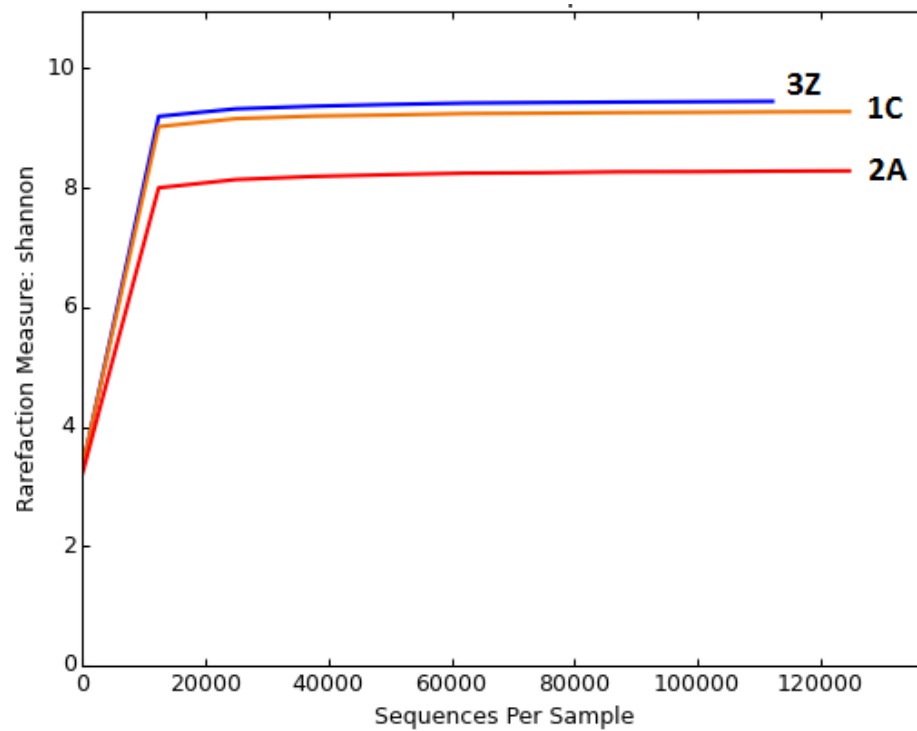


Figure S5: Genus distribution in samples-1C, 2A, 3Z

