

**Toxicity assessment and microbial response to soil antibiotics exposure:
differences between individual and mixed antibiotics**

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Table S1 The Physiochemical properties of collected soils

Parameter	Value	Chinese Standard Methods
pH	6.9	Glass electrode method (NY/T 1121.2-2006)
Moisture (%)	13.7	Gravimetric analysis (NY/T 52-1987)
Humus (g/kg)	12.8	Volumetric method (LY/T 1238-1999)
organic matter (g/kg)	15.9	Volumetric method (LY/T 1237-1999)
organic carbon (g/kg)	7.4	Volumetric method (LY/T 1237-1999)
total nitrogen (g/kg)	1.78	Volumetric method (LY/T 1228-2015)
hydrolyzable nitrogen (mg/kg)	42.7	Volumetric method (LY/T 1228-2015)
total phosphorus (g/kg)	1.22	UV-VIS (LY/T 1232-2015)
available phosphorus (mg/kg)	58.9	UV-VIS (LY/T 1232-2015)
available potassium (mg/kg)	93	ICP- AES (LY/T 1234-2015)

Table S2 The detection condition of antibiotics via HPLC

Antibiotics	Chromatographic column	Flow phase	Flow rate	Detection absorbance (nm)	Recovery rate (%)	RSD (%)	References
SD	Venusil XBP C18 column	Acetonitrile:water (v/v, 30:70)	0.8 mL/min	269	74.28-85.56	1.27	{Chen, 2019 #4587}
TC	μ Bondapak C18 column (3.9 mm \times 300 mm, 10 μ m)	Acetonitrile:water (v/v, 23:77)	0.7 mL/min	254	81.53-92.64	1.52	{Chessa, 2015 #4599}
EM	XDB C18 column (4.6 mm \times 100 mm, 5 μ m)	(A) 0.1% HCOOH in water and (B) 0.1% HCOOH in acetonitrile	0.8 mL/min, after a isocratic hold of 5% B for 1 min, the percentage of B linearly increased to 50% in 8 min	274	79.52-87.49	2.03	{Goulas, 2018 #4601} {Naraginti, 2019 #4602}

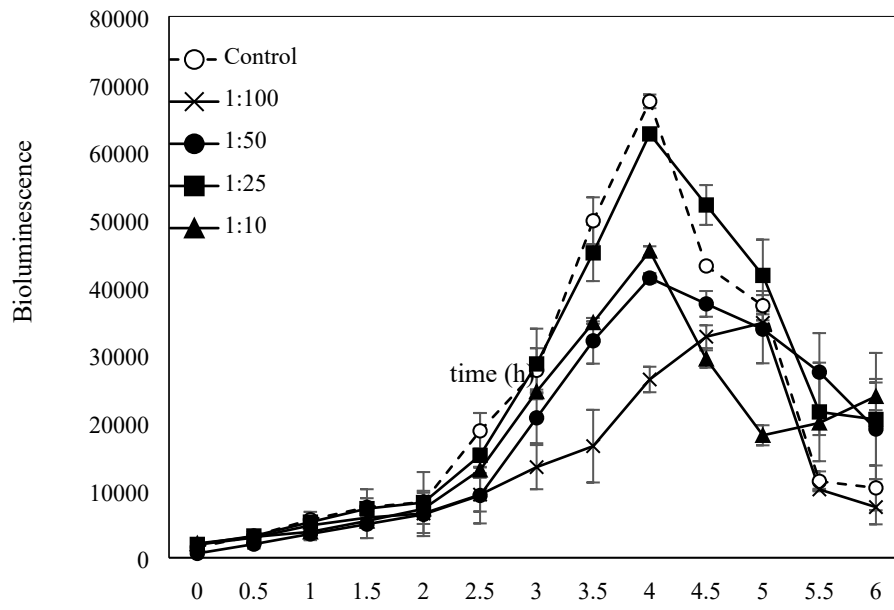


Figure S1. The influence of soil/water ratio on the bioluminescent intensity of the bioreporter over time. Control indicates no soil addition. Error bars indicate the standard deviations of the replicates.

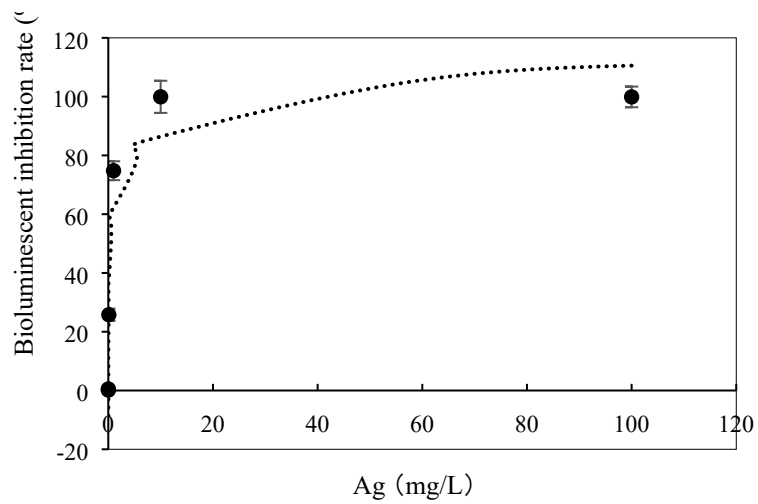
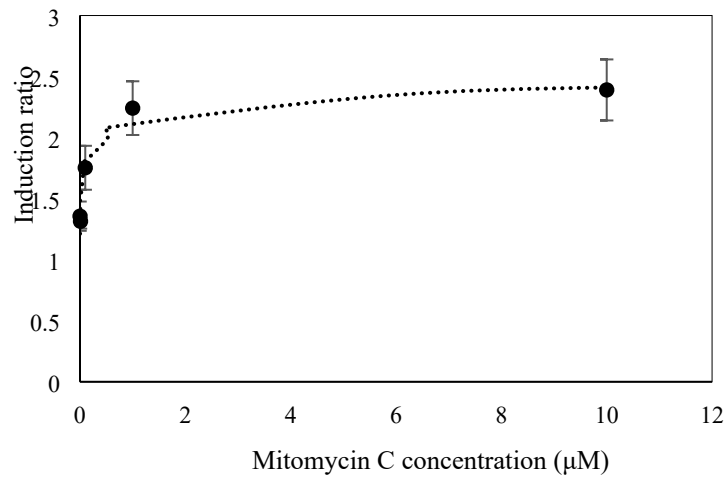


Figure S2. Response of ADP1 to mitomycin C and Ag^+ . (A) Dose-effect relationship between mitomycin C concentration and the bioreporter response; (B) Dose-effect relationship between Ag^+ concentration and the bioreporter response. Error bars indicate the standard deviations of the replicates.

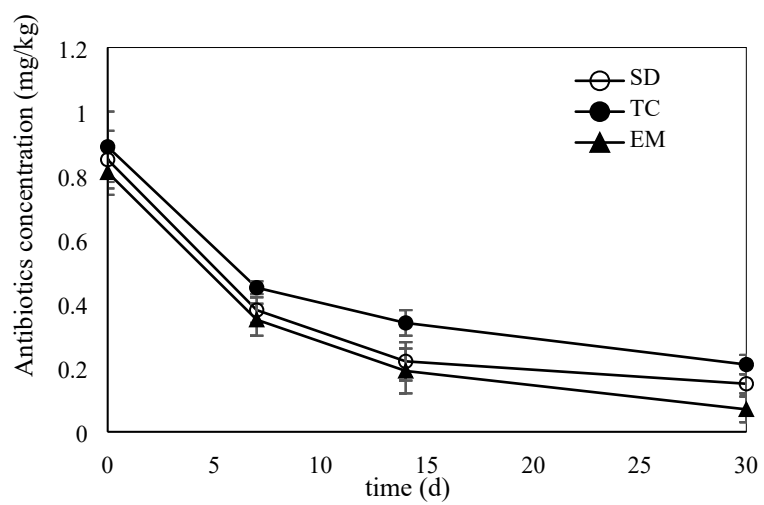


Figure S3. The dissipation curves of SD, TC and EM in soils. Error bars indicate the standard deviations of the replicates.

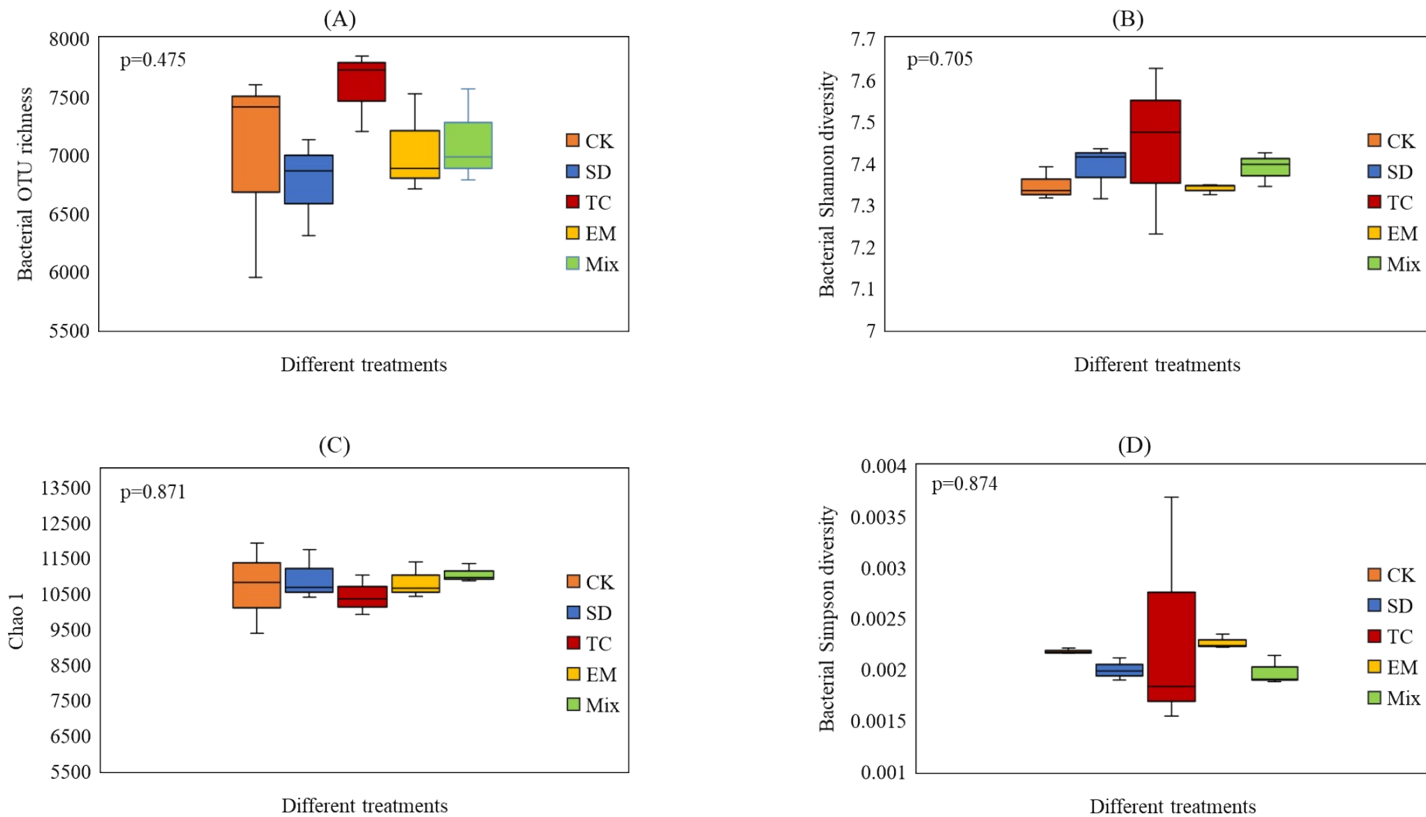


Figure S4. Soil bacterial diversity in different treatments (A) bacterial OTU richness; (B) bacterial Shannon diversity; (C) Chao 1 index; (D) bacterial Simpson diversity. CK includes treatments of CK_7, CK_14 and CK_30. SD includes treatments of SD_7, SD_14 and SD_30. TC includes treatments of TC_7, TC_14 and TC_30. EM includes treatments of EM_7, EM_14 and EM_30. Mix includes treatments of Mix_7, Mix_14 and Mix_30. Error bars indicate the standard deviations of the replicates.