Text S1. chemicals

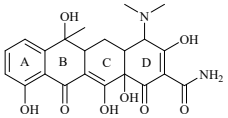
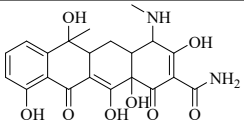
Potassium dihydrogen phosphate(KH_2PO_4) was purchased from Tianjin Tian-li Chemical Reagent Co, LTD. Tert-butanol (TBA, $C_4H_{10}O$) was purchased from Sinopharm Group Chemical Reagent Co, LTD. Furfuryl alcohol (FFA, $C_5H_6O_2$) and terephthalic acid (PTA, $C_8H_6O_4$) are purchased from Shanghai Maclin Biochemical Technology Co, LTD. P-benzoquinone (p-BQ, $C_6H_4O_2$) was purchased from Aladdin's reagent platform. N, N dimethylformamide (DMF, C_3H_7NO), anhydrous ethanol (EtOH, C_2H_5OH), 5, 5-dimethyl-1-pyrroline n-oxide (DMPO) and 2, 2, 6, 6-tetramethylpiperidine (TEMP) were purchased from Tianjin Fuyu Fine Chemical Co, LTD. Hydroxylamine hydrochloride, acetonitrile, and glacial acetic acid were purchased from Sinopharm Chemical Reagent Co.

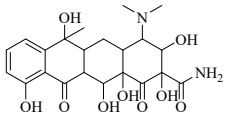
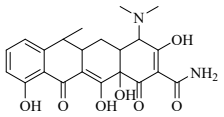
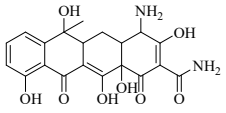
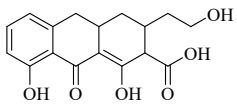
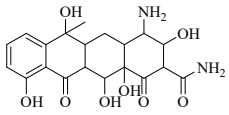
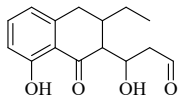
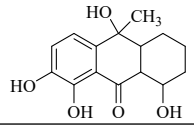
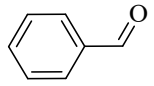
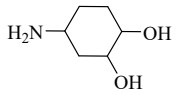
Text S2 Characterizatio

Liquid chromatography-mass spectrometry (LC-MS, Agilent 1200, America) was conducted to analysis the concentration of residual TC and identify the intermediates of TC degradation. A reverse phase Hypersil C-18 column (4.6 mm×150 mm, i.d., 5 μm) was equipped and the maximum absorption wavelength was 358 nm. The flow rate of mobile phase (0.01 mol/L oxalic acid: acetonitrile: methanol = 70:20:10, v:v:v) was 1 mL/min and the injection volume was 20 μL at 25 ℃.

The flow rate of mobile phase (0.01 mol/L oxalic acid: acetonitrile: methanol = 70:20:10, v:v:v) was 1 mL/min and the injection volume was 20 μL at 25 ℃. The concentrations of PMSO and $PMSO_2$ were monitored using high performance liquid chromatography (HPLC, UltiMateTM3000, Japan) equipped with a C18 column (4.6 mm × 250 mm × 5 μm) and a UV detector at 215 nm. The mobile phase was 30:70 (v/v) acetonitrile and water at a flow rate of 1.0 mL/min.

Table. S1 Liquid chromatography-mass spectrometry analysis data

	m/z	Molecular formula	Chemical structure
TC	445.16	$C_{22}H_{22}N_2O_8$	
P1	430.14	$C_{21}H_{22}N_2O_8$	

P2	464.18	$C_{22}H_{28}N_2O_9$	
P3	428.16	$C_{22}H_{24}N_2O_7$	
P4	416.12	$C_{20}H_{20}N_2O_8$	
P5	319.11	$C_{17}H_{18}O_6$	
P6	421.16	$C_{20}H_{24}N_2O_8$	
P7	263.12	$C_{15}H_{18}O_4$	
P8	278.12	$C_{15}H_{18}O_5$	
P9	106.04	C_7H_6O	
P10	131.09	$C_6H_{13}NO_2$	
P11	115.1	$C_6H_{13}NO$