

**Evaluation of the acute toxicity of oilfield-produced water using a recombinant
luminescent *Escherichia coli* sensor**

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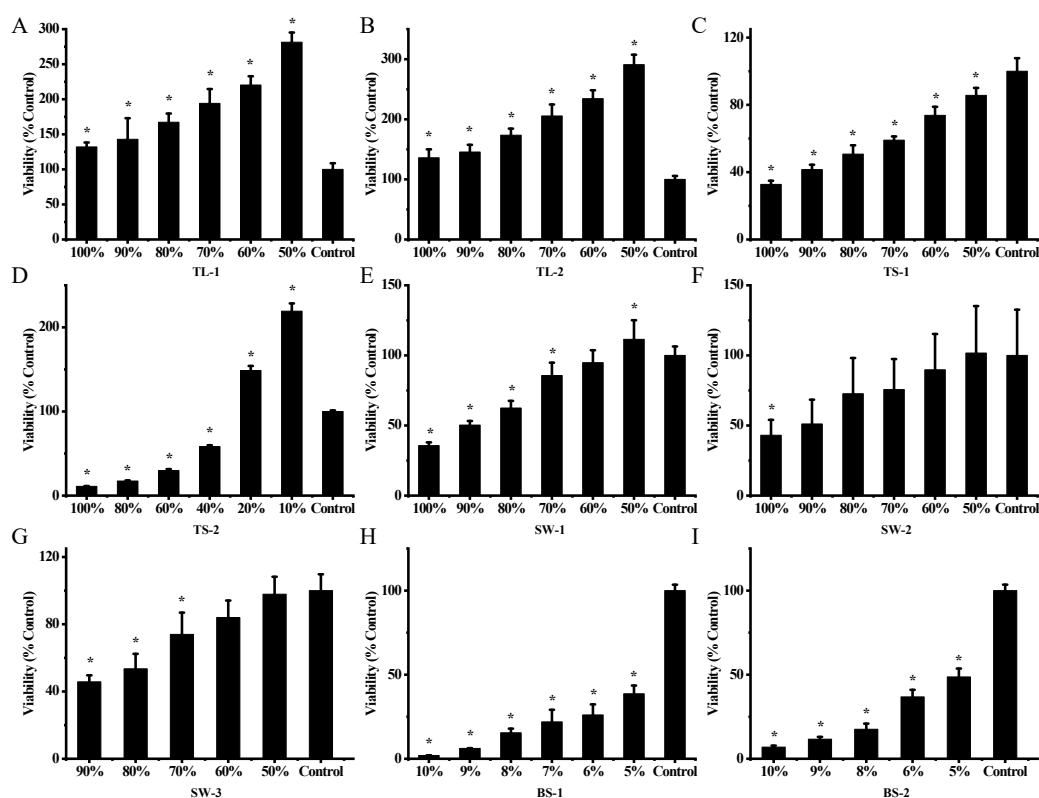


Figure S1. The effect of oilfield produced water on *P. phosphoreum* 502.

The luminescence of *P. phosphoreum* 502 was detected in different sources of oilfield produced water as mentioned in the materials and methods. The results were presented as the mean $\pm$ SD (in triplicate for each experiment). Statistical differences to the controls were shown as $*p < 0.05$.

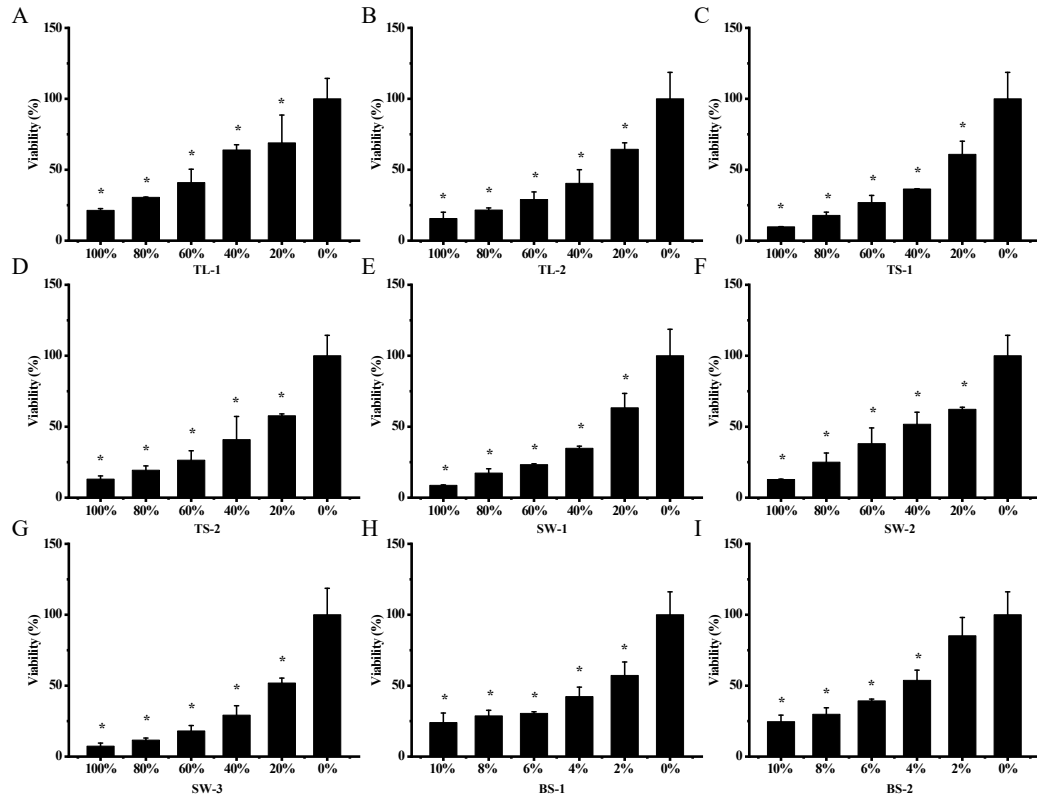


Figure S2. The effect of oilfield produced water on *E. coli* DH5a (pGENlux).

The luminescence of *E. coli* DH5a (pGENlux) was detected in different sources of oilfield produced water as mentioned in the materials and methods. The results were presented as the mean $\pm$ SD (in triplicate for each experiment). Statistical differences to the controls were shown as $*p < 0.05$.

Table S1. The metal concentrations and the physicochemical parameter values of the oilfield produced water.

The concentrations of metal and the values of physicochemical parameters (TDS, Salt and pH) were detected as mentioned in the materials and methods. The results were presented as the mean $\pm$ SD (in triplicate for each experiment).

	Fe (mg/L)	As (mg/L)	Se (mg/L)	Ba (mg/L)	B (mg/L)	TDS (mg/L)	Salt (‰)	pH
TL-1	2.707 $\pm$ 3.004	0.0257 $\pm$ 0.0167	0.060 $\pm$ 0.008	34.033 $\pm$ 0.252	4.267 $\pm$ 0.0289	8133.3 $\pm$ 5.8	17.3 $\pm$ 0.2	7.0
TL-2	2.200 $\pm$ 0.010	0.0317 $\pm$ 0.012	0.085 $\pm$ 0.016	65.133 $\pm$ 0.586	7.420 $\pm$ 0.156	8140.0 $\pm$ 0.0	18.3 $\pm$ 0.0	6.5
TS-1	19.167 $\pm$ 0.404	-	-	53.233 $\pm$ 1.617	7.433 $\pm$ 0.136	8100.0 $\pm$ 0.0	21.0 $\pm$ 0.3	7.0
TS-2	0.591 $\pm$ 0.014	0.034 $\pm$ 0.024	0.089 $\pm$ 0.009	62.267 $\pm$ 0.306	6.420 $\pm$ 0.0656	8110.0 $\pm$ 0.0	20.5 $\pm$ 0.5	7.0
SW-1	0.056 $\pm$ 0.013	0.027 $\pm$ 0.022	0.088 $\pm$ 0.014	46.467 $\pm$ 0.208	5.600 $\pm$ 0.114	8110.0 $\pm$ 0.0	20.9 $\pm$ 0.1	7.0
SW-2	0.087 $\pm$ 0.001	0.027 $\pm$ 0.014	0.108 $\pm$ 0.010	67.867 $\pm$ 0.153	5.603 $\pm$ 0.119	8193.3 $\pm$ 63.5	21.3 $\pm$ 0.3	7.0
SW-3	0.082 $\pm$ 0.001	0.025 $\pm$ 0.016	0.069 $\pm$ 0.028	57.700 $\pm$ 0.500	5.913 $\pm$ 0.0643	7740.0 $\pm$ 0.0	21.2 $\pm$ 0.2	7.0
BS-1	10.700 $\pm$ 0.100	0.346 $\pm$ 0.014	-	4.940 $\pm$ 0.123	10.300 $\pm$ 0.100	6666.7 $\pm$ 5.8	13.0 $\pm$ 0.1	7.0
BS-2	10.050 $\pm$ 0.087	0.382 $\pm$ 0.029	-	4.673 $\pm$ 0.060	10.333 $\pm$ 0.058	6676.7 $\pm$ 5.8	12.9 $\pm$ 0.0	7.0