

**Article title:** Acetotrophic methanogens are sensitive to long-term nickel contaminated in paddy soil

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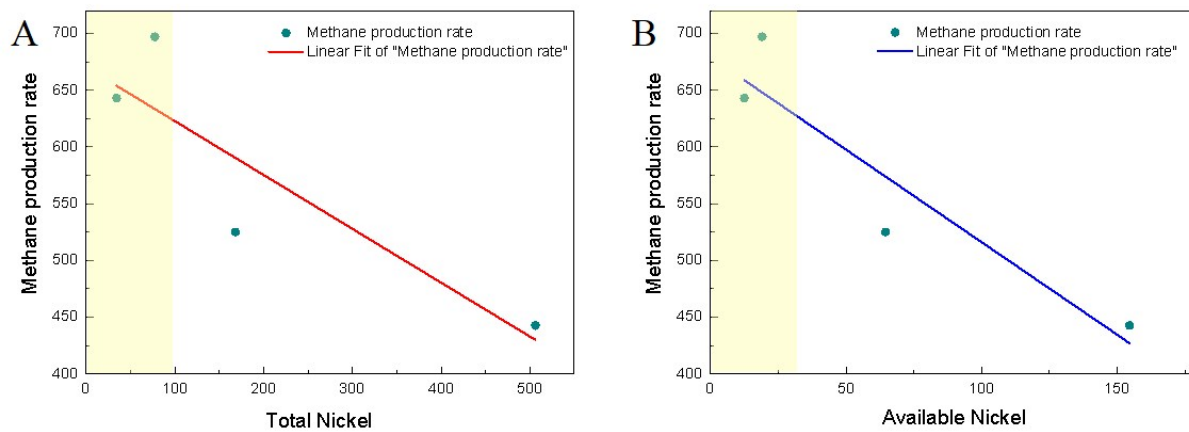
Treatment	pH	water content (%)	SOC (g kg <sup>-1</sup> )	MBC (mg kg <sup>-1</sup> )	DOC (mg kg <sup>-1</sup> )	TN (g kg <sup>-1</sup> )	NH <sub>4</sub> <sup>+</sup> (mg kg <sup>-1</sup> )	NO <sub>3</sub> <sup>-</sup> (mg kg <sup>-1</sup> )	SO <sub>4</sub> <sup>2-</sup> (g kg <sup>-1</sup> )	Fe <sup>3+</sup> (g kg <sup>-1</sup> )	Fe <sup>2+</sup> (g kg <sup>-1</sup> )	NO <sub>2</sub> <sup>-</sup> (mg kg <sup>-1</sup> )
Ni0	6.21±0.12a	30.2±0.11a	23.6±0.52a	48.1±1.90a	139.6±0.53a	4.19±0.24b	135.2±1.12a	13.1±0.52b	0.421±0.01b	4.62±0.91bc	0.123±0.02b	0.846±0.41a
Ni50	6.32±0.21a	30.5±0.13a	21.6±0.54ab	47.6±2.17a	134.0±1.61a	3.98±0.21bc	111.7±1.90b	12.9±1.10b	0.730±0.02a	4.51±0.89bc	1.310±0.40a	0.613±0.22a
Ni200	6.71±0.10a	30.7±0.16a	17.0±1.33b	21.0±1.21b	88.2±1.07b	2.58±0.11d	113.2±2.23b	10.9±0.44bc	0.420±0.13b	11.3±0.22a	0.419±0.31b	0.412±0.03a
Ni500	6.13±0.14a	26.3±0.09b	23.3±0.01a	23.3±0.01a	89.2±1.50b	4.69±0.31a	83.1±1.71c	19.5±0.61a	0.432±0.05b	5.84±0.31b	0.206±0.03b	0.402±0.12a

c

**Table S1** Physicochemical properties in long-term Ni-polluted paddy soils with different amounts of Ni amendments.

	Total Nickel	Available Nickel	Methane production rate
Total Nickel	1	0.993	-0.884
Available Nickel		1	-0.930
Methane production rate			1

**Table S2** Correlation analysis of Pearson coefficient between Ni and CH<sub>4</sub> production process



**Fig. S1** Linear fit between CH<sub>4</sub> production rate and Total Nickel (A), Available Nickel (B).