

1 **Appendix A.** Effect of different fumigants, i.e., chloropicrin (CP), 1,3- dichloropropene (1,3-D), and metam sodium (MS) on microbial C and
 2 microbial N.

Parameters	Treatment	Day after fumigation (day)						
		-7	0	7	14	28	56	84
Microbial C (mg kg ⁻¹)	CK	82.3	99.7±0.1 a	98.4±3.4 a	91.8±6.8 a	122.6±0.0 a	114.8±6.8 a	96.0±6.9 a
	CP	82.3	30.9±4.3 c	54.3±5.9 c	13.6 ±3.4 c	27.3±0.0 d	33.8±6.8 c	44.6±3.4 b
	1,3-D	82.3	85.9±6.9 ab	69.9±3.4 bc	61.2±6.8 b	75.0±6.8 c	74.3±6.8 b	44.6±3.4 b
	MS	82.3	75.6±6.9 b	74.6±5.9 b	95.2±5.9 a	95.4 ±6.8 b	87.8±5.9 b	41.1±5.9 b
Microbial N (mg kg ⁻¹)	CK	51.5	53.4±0.7 a	17.3±2.3 ab	22.8±1.2 a	19.9±0.9 a	21.3±0.2 a	26.8±2.7 a
	CP	51.5	33.3±2.8 c	21.7±2.2 a	4.0±0.9 b	1.4 ±0.5 c	0.6±0.2 b	1.3±0.5 b
	1,3-D	51.5	45.1±1.1 b	23.1±1.1 a	23.6±2.9 a	18.3±2.0 ab	18.8±2.8 a	23.3±1.1 a
	MS	51.5	47.3±1.1 b	15.1±1.2 b	15.3±0.2 c	15.2±1.1 b	20.8±1.3 a	24.9±0.5 a

3 Data shown as mean ± stand error (*n*=3) and different letters indicated a significant difference (*P*<0.05).

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6 **Appendix B.** The microbial diversity indices in the soils fumigated with chloropicrin (CP), 1,3-dichloropropene (1,3-D), and metam sodium
 7 (MS), and CK at different incubation days.

Parameters	Treatment	Day after fumigation (day)		
		0	28	84
Simpson index	CK	50.85	49.44	47.10
	CP	47.30*	53.40*	51.60*
	1,3-D	47.24*	43.63*	36.76*
	MS	48.61	47.31	46.76
Shannon index	CK	4.08	4.07	4.03
	CP	4.00*	4.13*	4.09*
	1,3-D	4.00*	3.87*	3.81*
	MS	4.06	3.97	3.99
Richness index	CK	64	65	60
	CP	59*	69*	66*
	1,3-D	56*	51*	50*
	MS	62	57	58

8 *: The significantly different ($P < 0.05$) between CK and the fumigants at identical incubation day based on Dunnett's test.

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