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# The Dual Roles of Nano Zero-Valent Iron and Zinc Oxide in Antibiotics Resistance Genes (ARGs) SPREAD in Sediment

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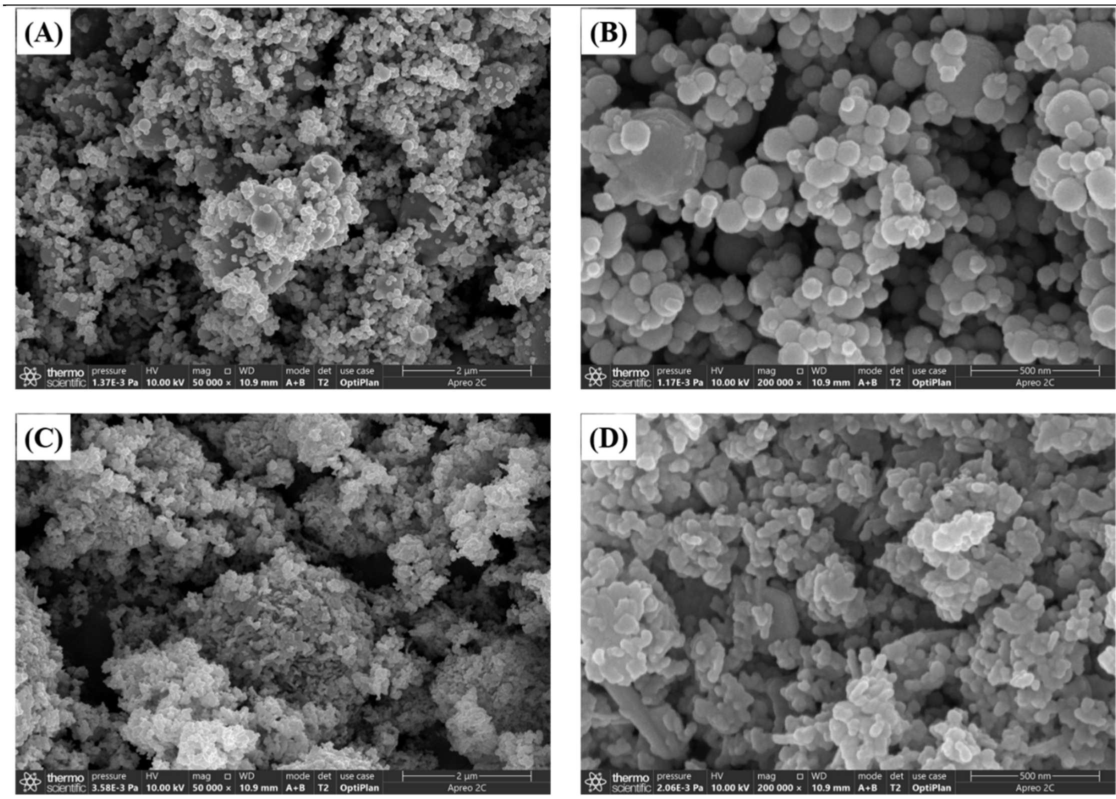


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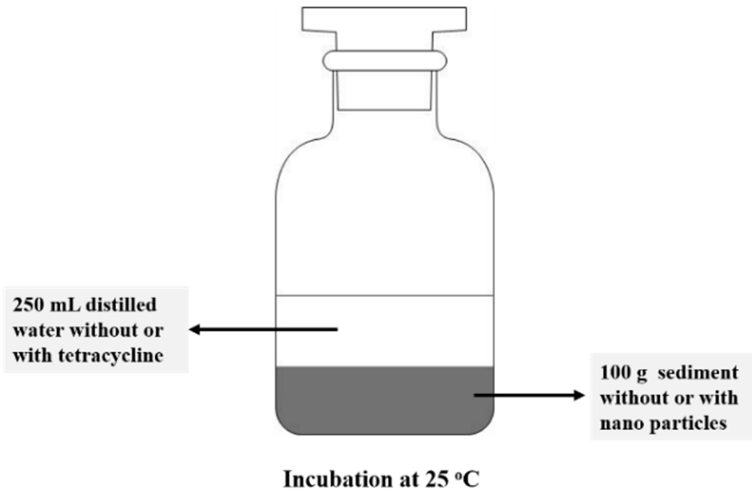


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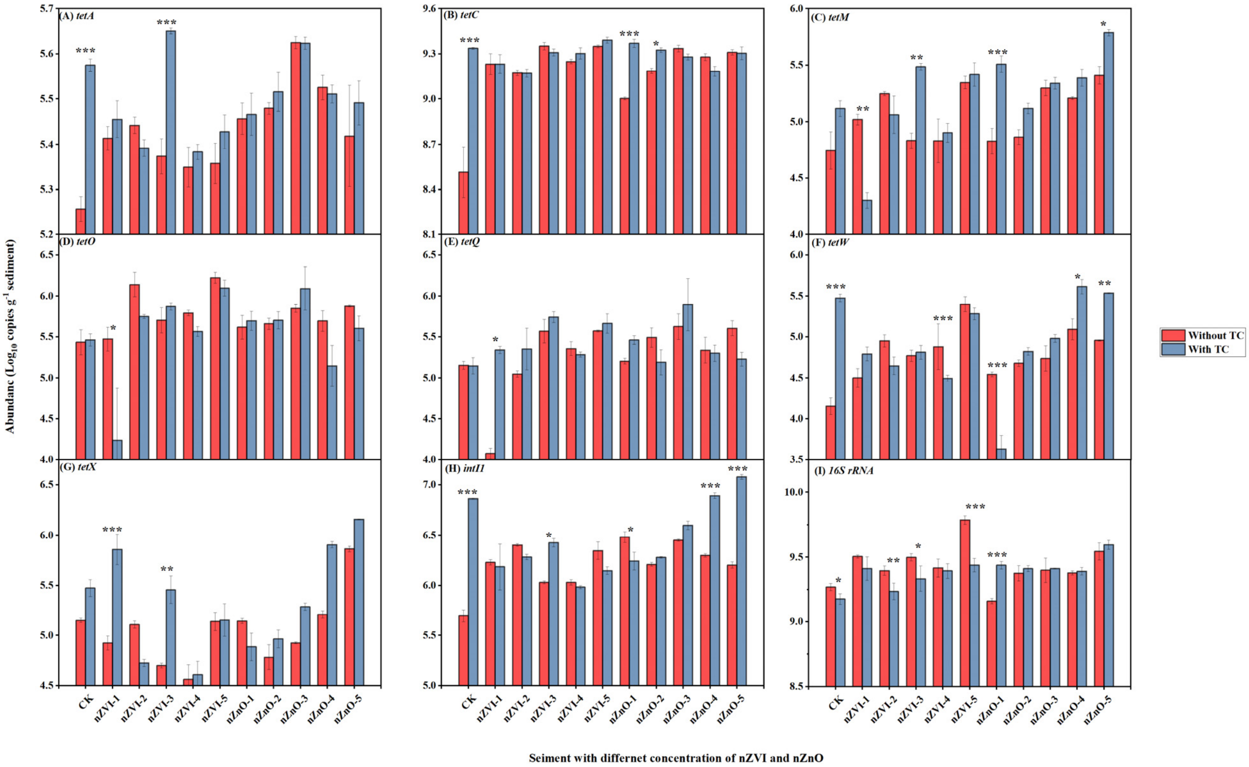


**Figure S3.** The differences of tet-ARGs, intI1 and 16S rRNA between situation 1 (without tetracycline) and situation 2 (with tetracycline). * $p<0.05$, ** $p<0.01$, and *** $p<0.001$.

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MDPI

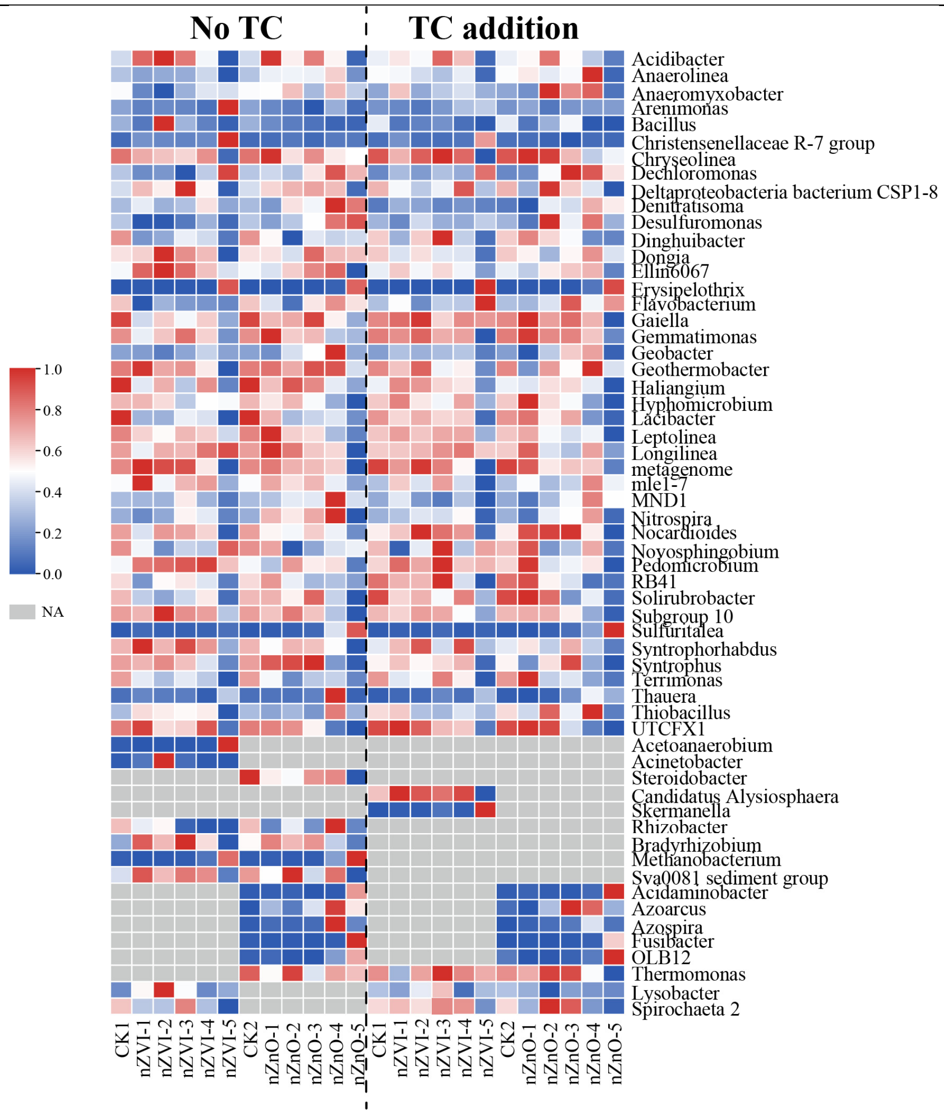


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**Table S1.** The soluble proportion of Zn and Fe from the nanoparticles (NPs) modified sediment after incubation.

| NPs modified sediment | Dissolved Zn (%) | NPs modified sediment | Dissolved Fe (%) |
|---|---|---|---|
| nZnO-3 | 0.003 | nZVI-3 | <0.001 |
| nZnO-5 | 0.001 | nZVI-5 | <0.001 |
| nZnO-3+TC | 0.003 | nZVI-3+TC | <0.001 |
| nZnO-5+TC | 0.002 | nZVI-5+TC | <0.001 |

**Table S2.** The primer, annealing temperature, and amplification size of the target genes in this study.

| Target gene | Primer | Sequence (5′-3′) | Amplicon size (bp) | Annealing temperature (°C) | References |
|---|---|---|---|---|---|
| *tetA* | *tetA*-F | GCTACATCCTGCTTGCCTTC | 210 | 60 | Chen et al., 2013; Wang et al., 2017 [1,2] |
| | *tetA*-R | CATAGATCGCCGTGAAGAGG | | | |
| *tetC* | *tetC-F* | CTTGAGAGCCTTCAACCCAG | 418 | 63 | |
| | *tetC-R* | ATGGTCGTCATCTACCTGCC | | | |
| *tetM* | *tetM*-F | ACAGAAAGCTTATTATATAAC | 171 | 55 | |
| | *tetM*-R | TGGCGTGTCTATGATGTTCAC | | | |
| *tetO* | *tetO*-F | GATGGCATA-CAGGCACAGACC | 172 | 57 | |
| | *tetO*-R | GCCCAACCTTTTGCTTCACTA | | | |
| *tetQ* | *tetQ*-F | AGAATCTGCTGTTTGCCAGTG | 169 | 62 | |
| | *tetQ*-R | CGGAGTGTCAATGATATTGCA | | | |
| *tetW* | *tetW*-F | GAGAGCCTGCTA-TATGCCAGC | 168 | 60 | |
| | *tetW*-R | GGGCG-TATCCACAATGTTAAC | | | |
| *tetX* | *tetX-F* | AGCCTTACCAATGGGTG-TAAA | 278 | 60 | |
| | *TetX-R* | TTCTTACCTTGGACATCCCG | | | |
| *intI1* | *intI1-F* | CCTCCCGCACGATGATC | 280 | 60 | |
| | *intI1-R* | TCCACGCATCGTCAGGC | | | |
| *16S rRNA* | *515-F* | GTGCCAGCMGCCGCGGTAA | 394 | 56 | |
| | *909-R* | CCCCGYCAATTCMTTTRAGT | | | |

## Reference

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2. Wang, R.; Chen, M.; Feng, F.; Zhang, J.; Sui, Q.; Tong, J.; Wei, Y.; Wei, D. Effects of chlortetracycline and copper on tetracyclines and copper resistance genes and microbial community during swine manure anaerobic digestion. *Bioresour. Technol.* **2017**, *238*, 57–69.