

# Supplementary Data

## Study on the nucleation crystallization pelleting process for manganese ion recovery from hydrometallurgical tailings water

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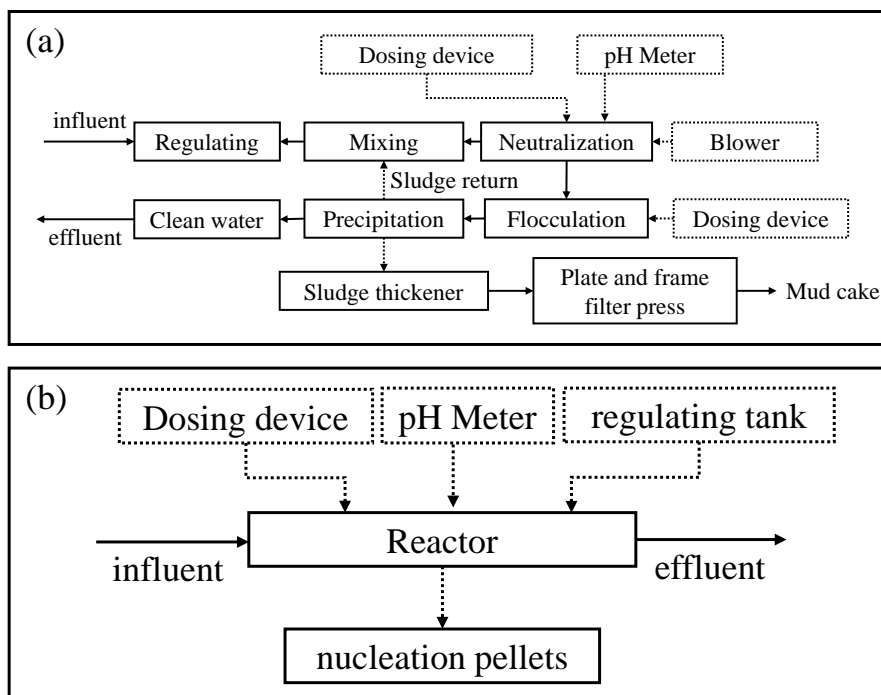


Fig.S1 (a)The traditional chemical precipitation-coagulation process and (b)the nucleation crystallization pelleting process.

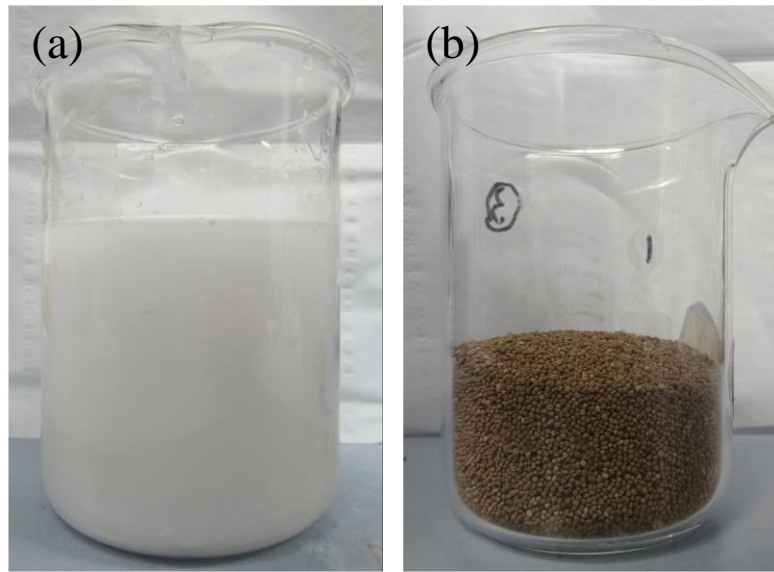


Fig.S2 (a) Chemical precipitation and (b) nucleation pellets.

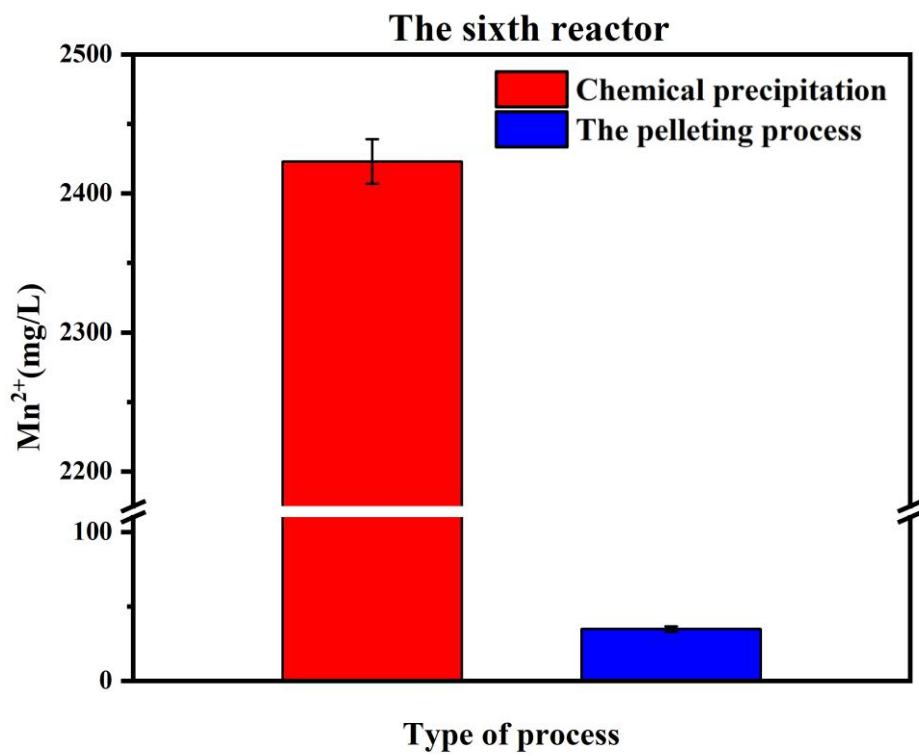


Fig.S3 Effect of chemical precipitation and the nucleation crystallization pelleting process on Mn ion concentration.

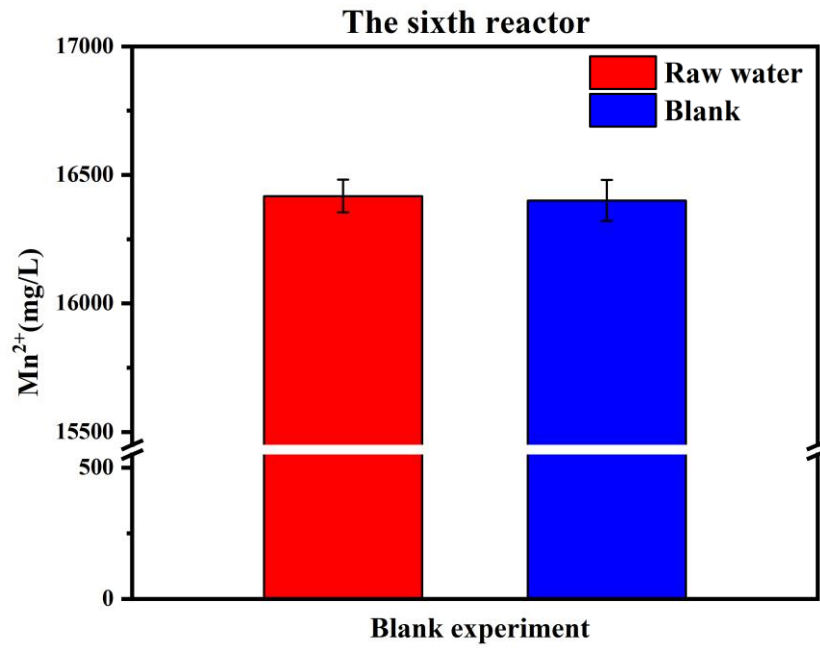


Fig.S4 Effect of different Na<sub>2</sub>CO<sub>3</sub> dosage on Mn ion concentration in six-stage series operation.

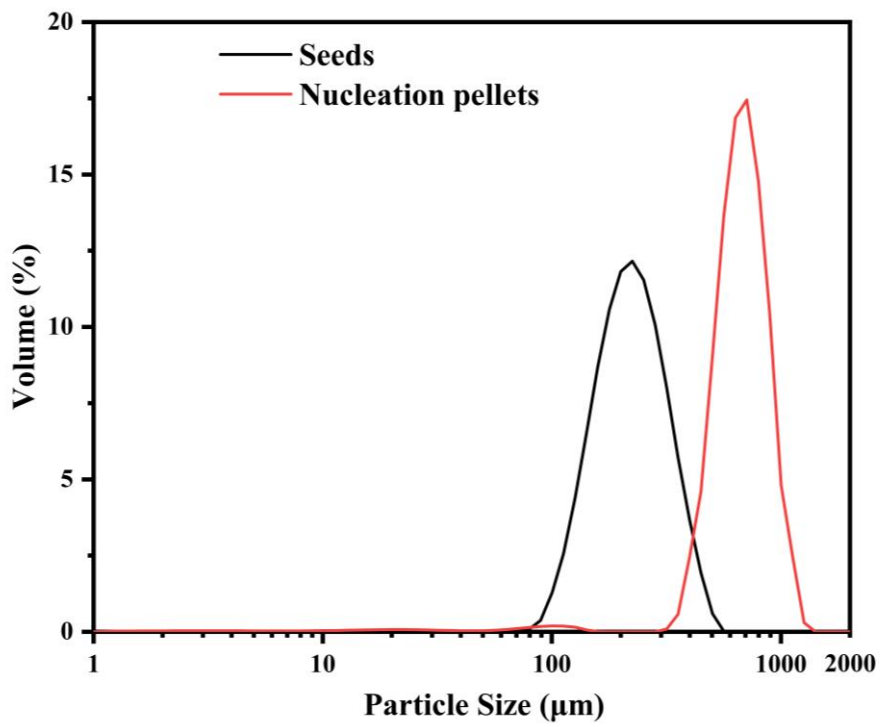
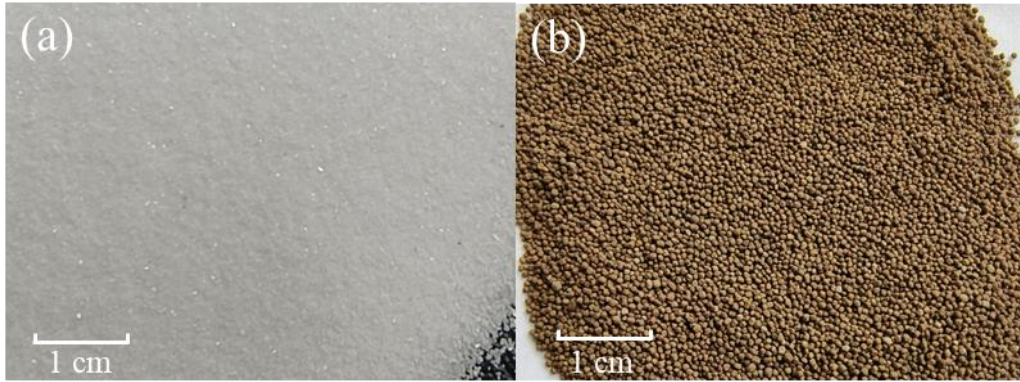
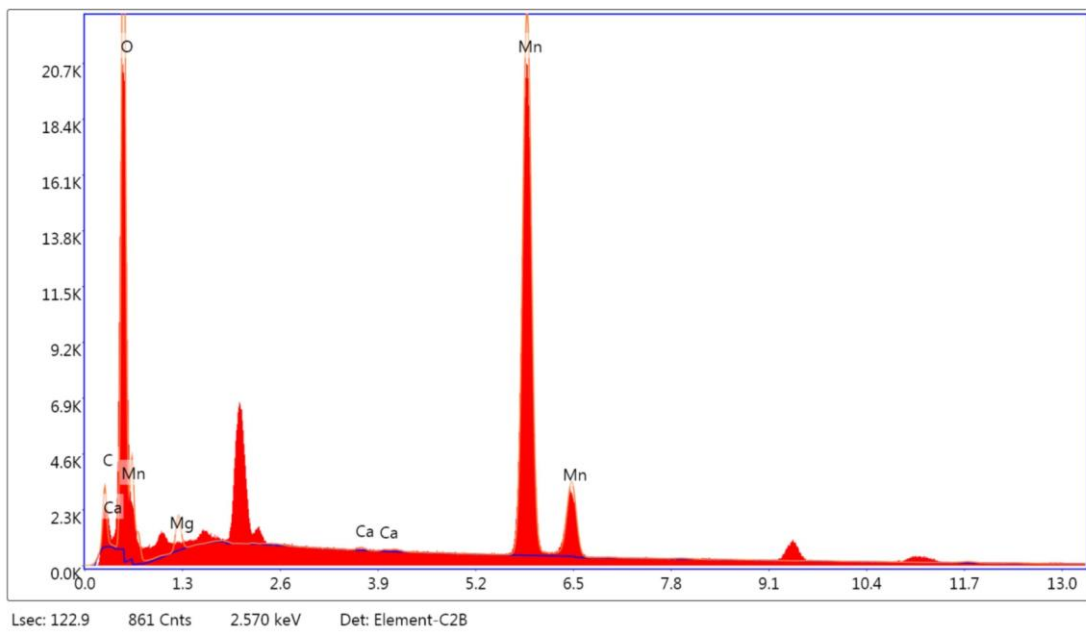


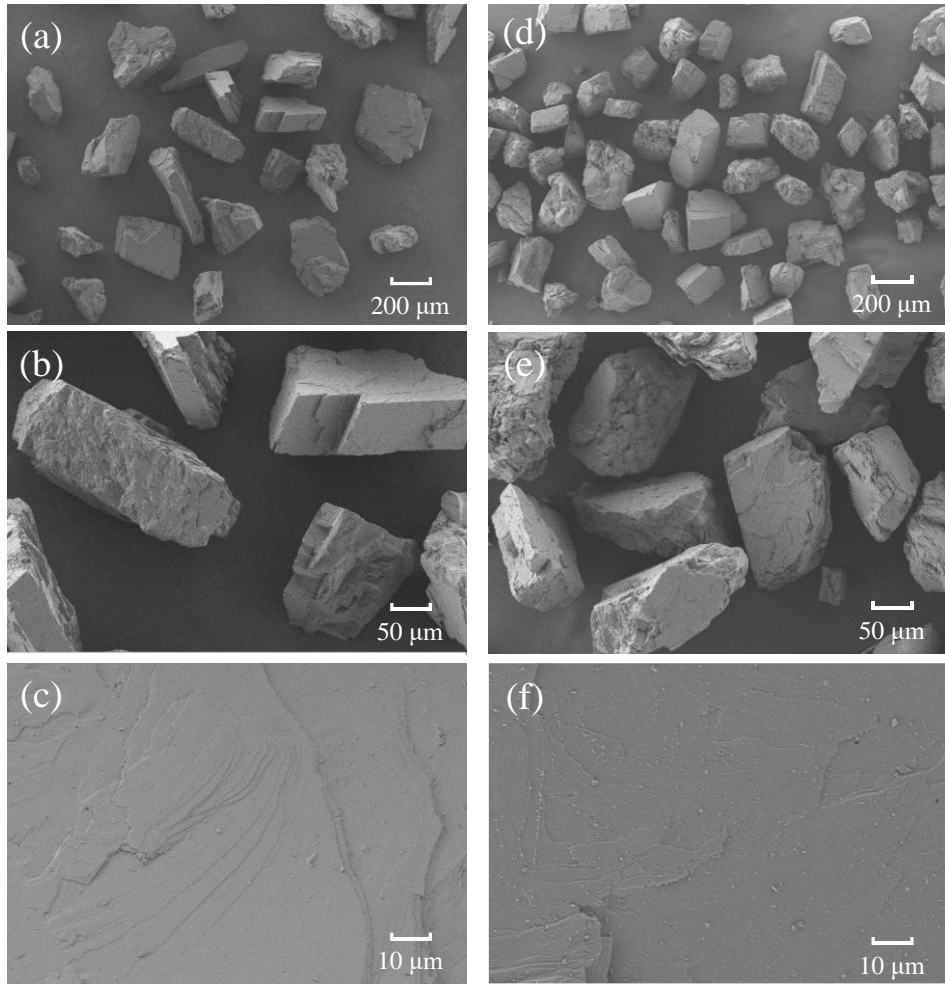
Fig.S5 Particle size of seeds and nucleation pellets.



**Fig.S6 (a) Specialized seeds and (b) nucleation pellets.**



**Fig.S7 EDS analysis of nucleation pellets.**



**Fig.S8 SEM of (a-c) original and (e-h) post-use seeds**