Supplementary material

A list of figure and tables

Table S1 BET parameters of the pristine MS and CTS-MS composite.

Sample	Surface area (m^2/g)	Pore volume (cm^3/g)	Average pore diameter (nm)
MS	8.697	0.007938	3.818
CTS-MS	5.855	0.008705	3.052

Table S2 Comparison of the maximum adsorption capacity of OII onto various adsorbents.

Adsorbents	**pH**	q_m**(mg/g)**	**References**
LDH/PEG	6.2	625	41
PANI/FeOOH	3	155.8	42
BH700-10	2	91.68	43
γ-Fe_2O_3@C@UiO-66-NH_2	7	208.6	44
MIM-MMT	2	2.29	45
MC3	2	201.2	46
CS/Gel-0.1GN	3	72.2	47
Bent-PMETAC	7	48.12	48
CTS-MS	3	712	This study

Table S3 Kinetics model correlation coefficient for OII adsorption on CTS-MS composite at different temperatures.

***T*/K**	**Correlation coefficient (R^2)**		
	PFO model	**PSO model**	**Intra-particle model**
277.15	0.925	0.994	0.913
293.15	0.925	0.995	0.910
303.15	0.950	0.999	0.837
313.15	0.978	0.999	0.640

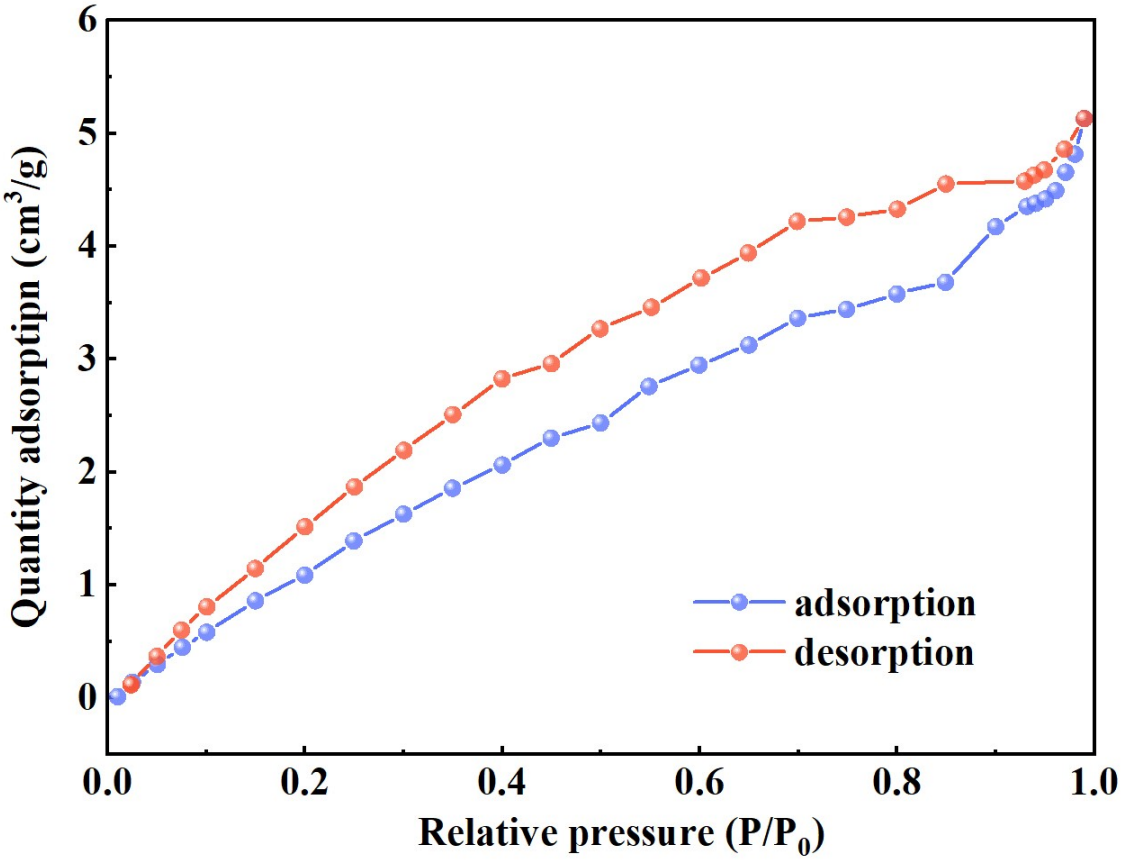

Fig. S1. Nitrogen adsorption-desorption isotherms of MS.

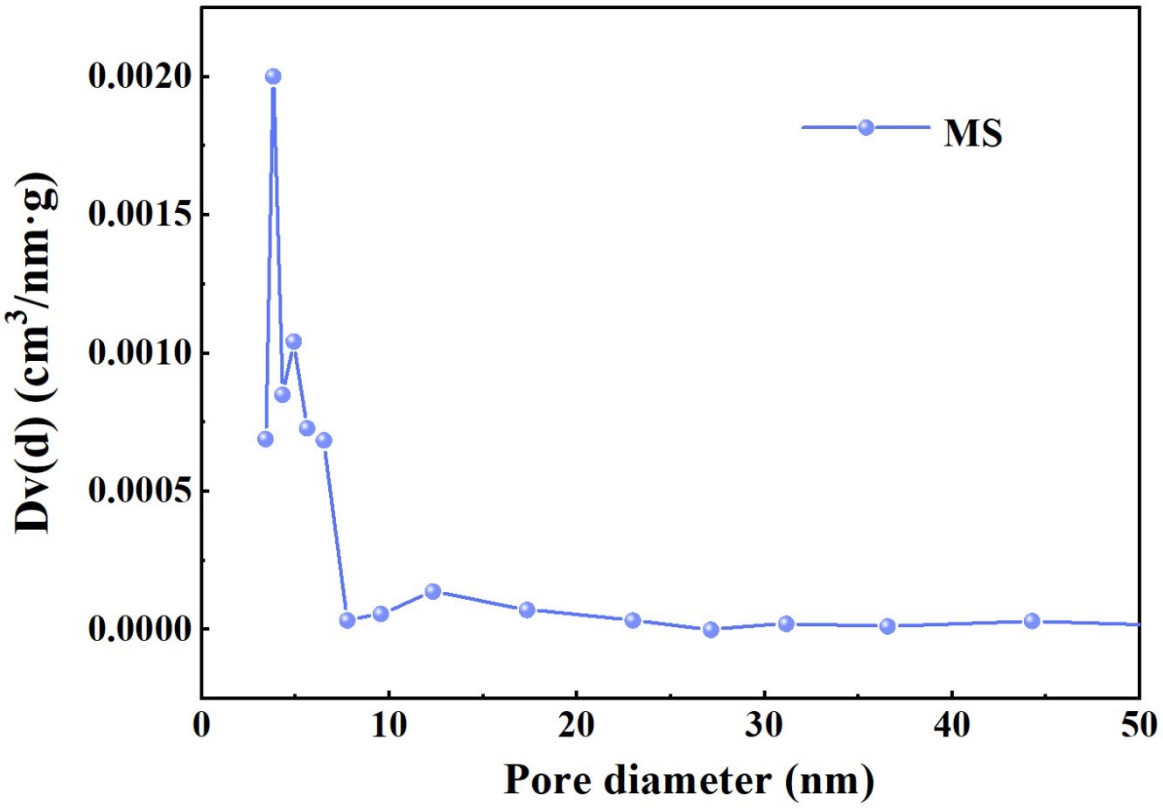

Fig. S2. BJH pore size distribution of MS.

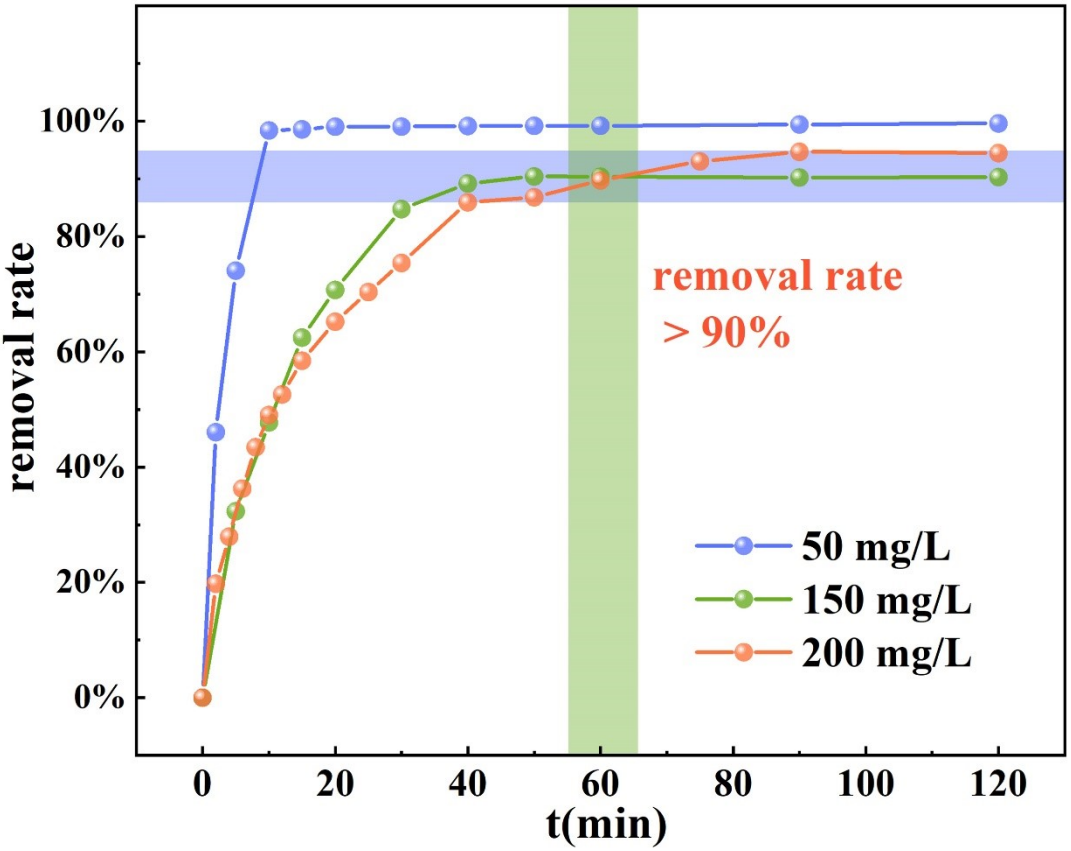

Fig. S3. Effect of contact time on adsorption of different concentrations of OII by CTS-MS composite.

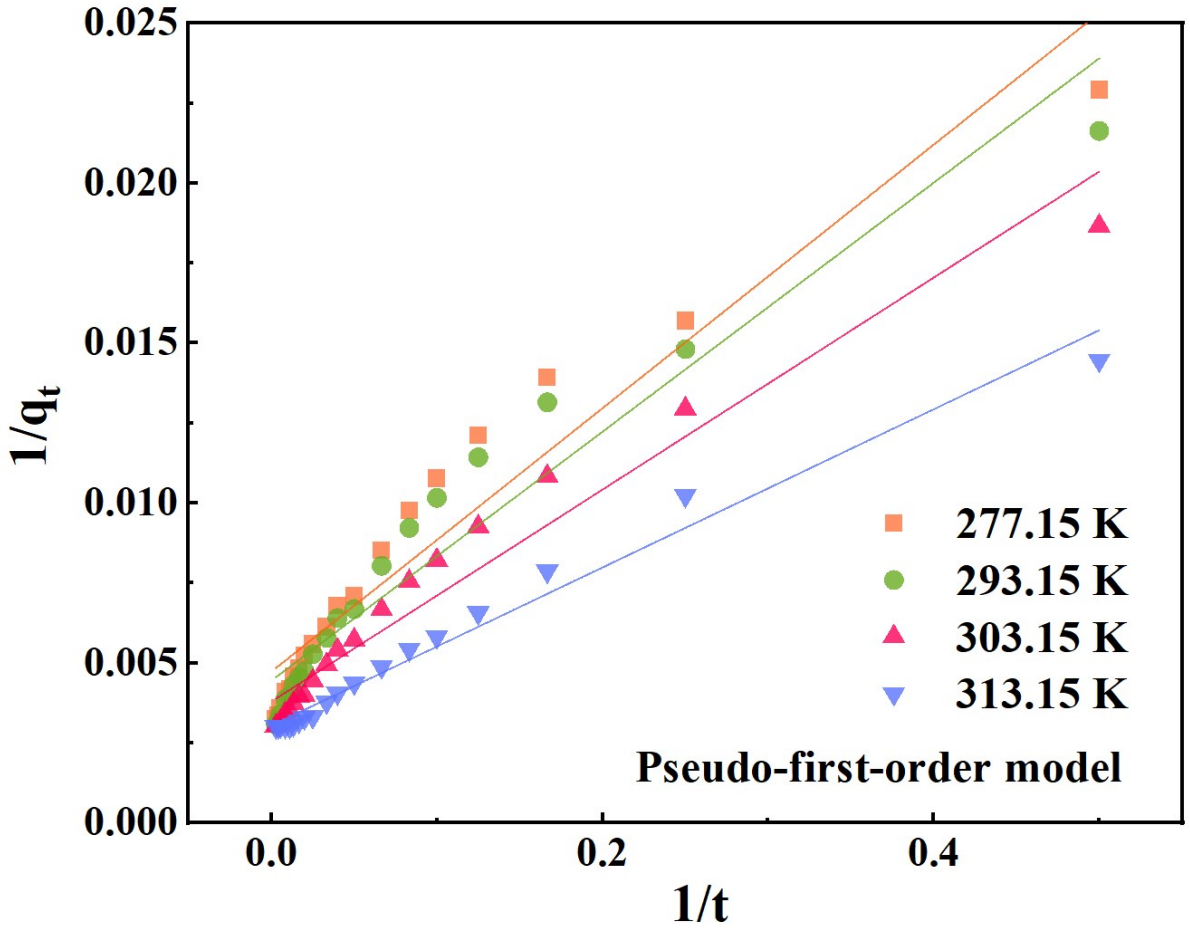

Fig. S4. The pseudo-first-order kinetics linear fitting under different temperature conditions (220 mg/L; 100 mL; pH 3; 58 mg dosage; 360 min).

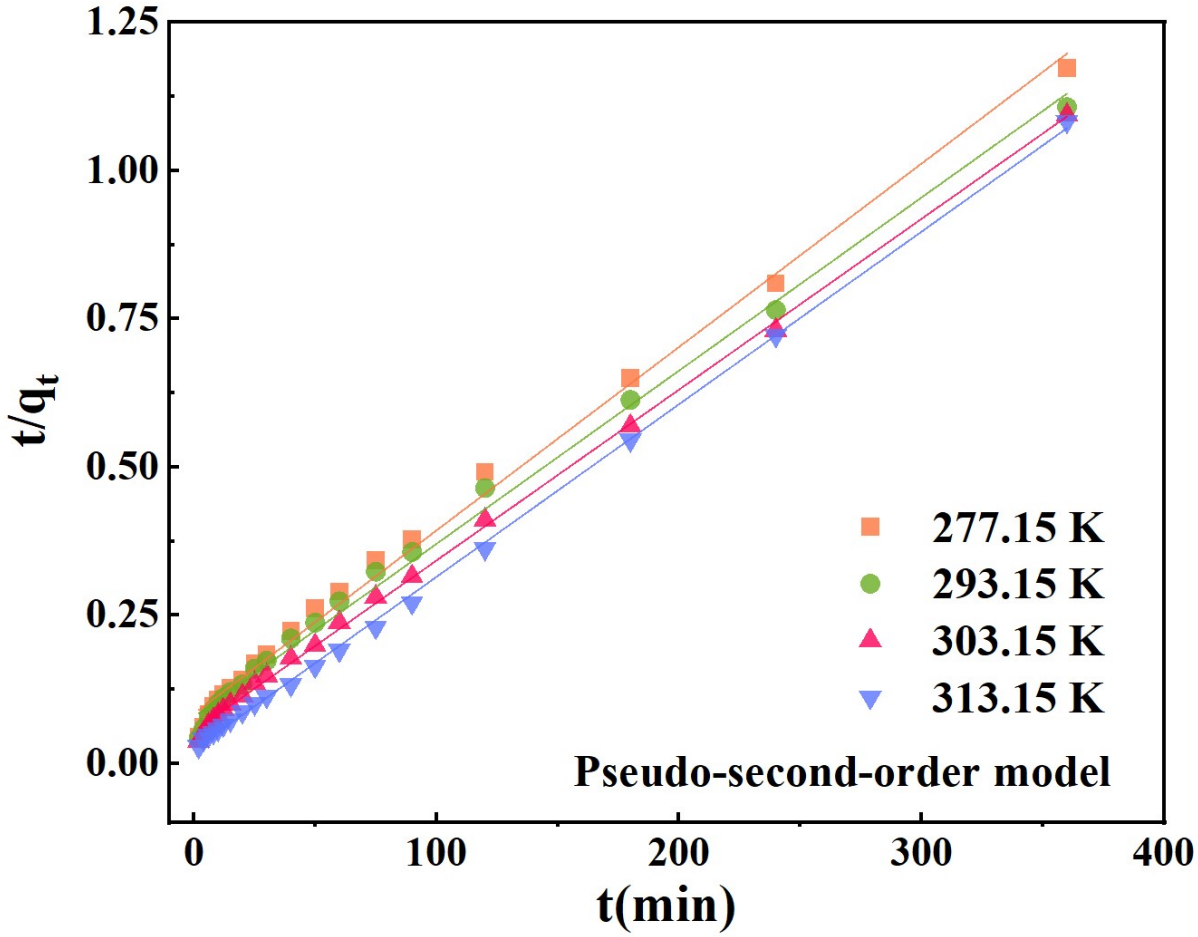

Fig. S5. The pseudo-second-order kinetics linear fitting under different temperature conditions (220 mg/L; 100 mL; pH 3; 58 mg dosage; 360 min).

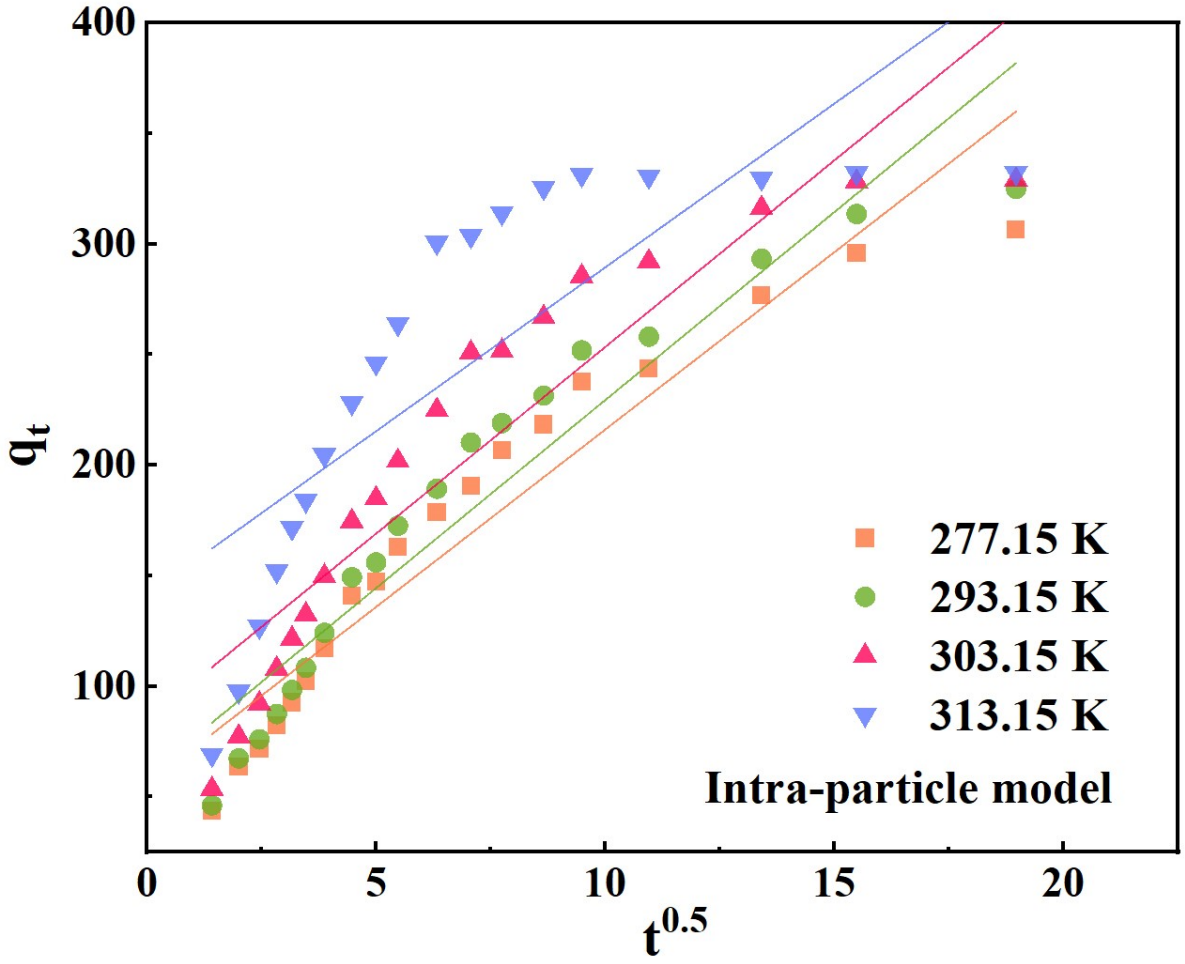

Fig. S6. The intra-particle kinetics linear fitting under different temperature conditions (220 mg/L; 100 mL; pH 3; 58 mg dosage; 360 min).