

Highly selective pH dependent ozonation of cyclohexane over Mn/ γ -Al₂O₃ catalysts at ambient reaction conditions

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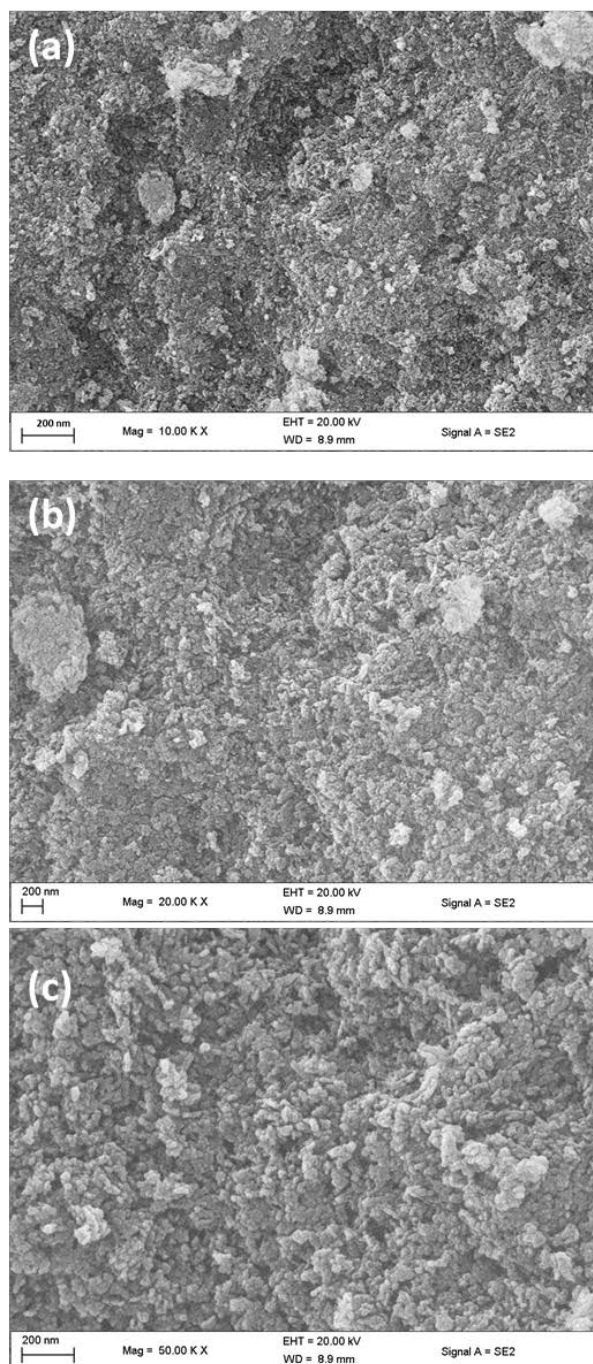


Figure S1. SEM images of (a) 10% Mn/γ-Al₂O₃, (b) 12.5% Mn/γ-Al₂O₃ and (c) 15% Mn/γ-Al₂O₃ catalysts.

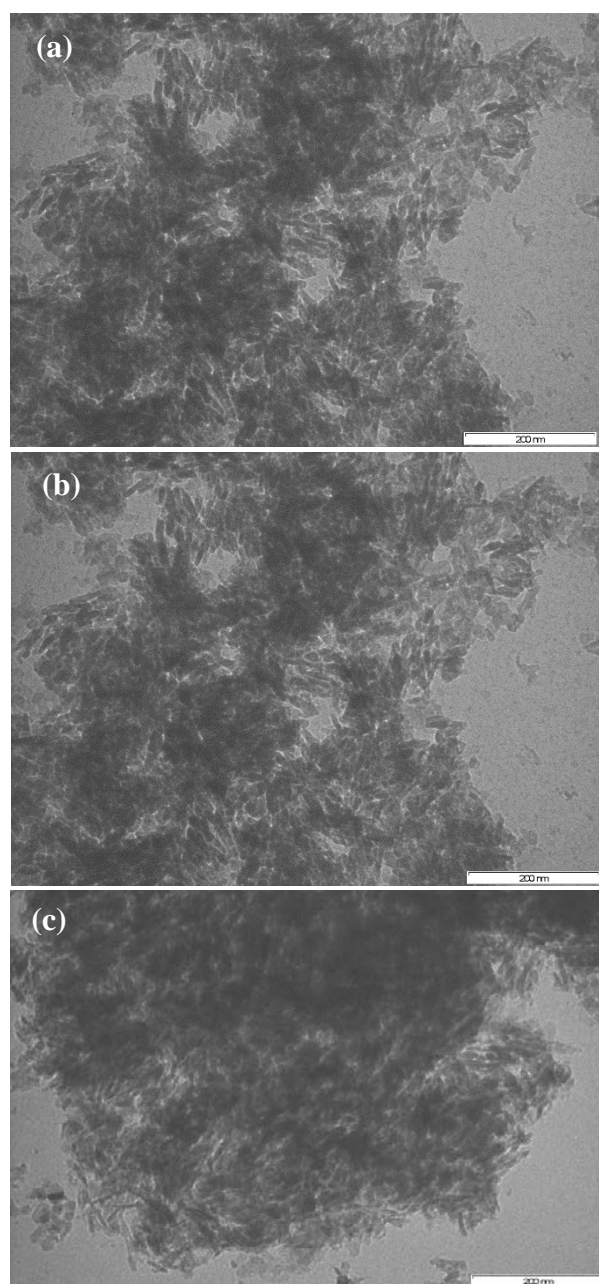


Figure S2. TEM images of (a) 10% Mn/ γ -Al₂O₃, (b) 12.5% Mn/ γ -Al₂O₃ and (c) 15% Mn/ γ -Al₂O₃ catalysts.

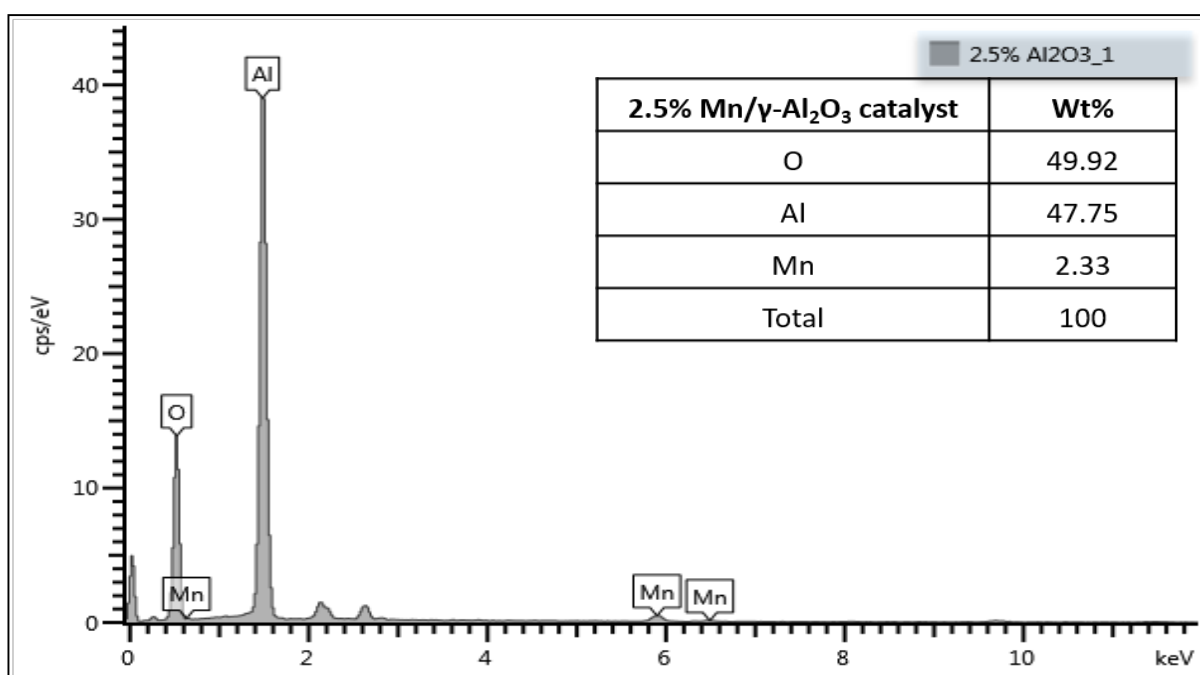


Figure S3 (a). SEM-EDX image for 2.5% Mn/γ-Al₂O₃ catalyst.

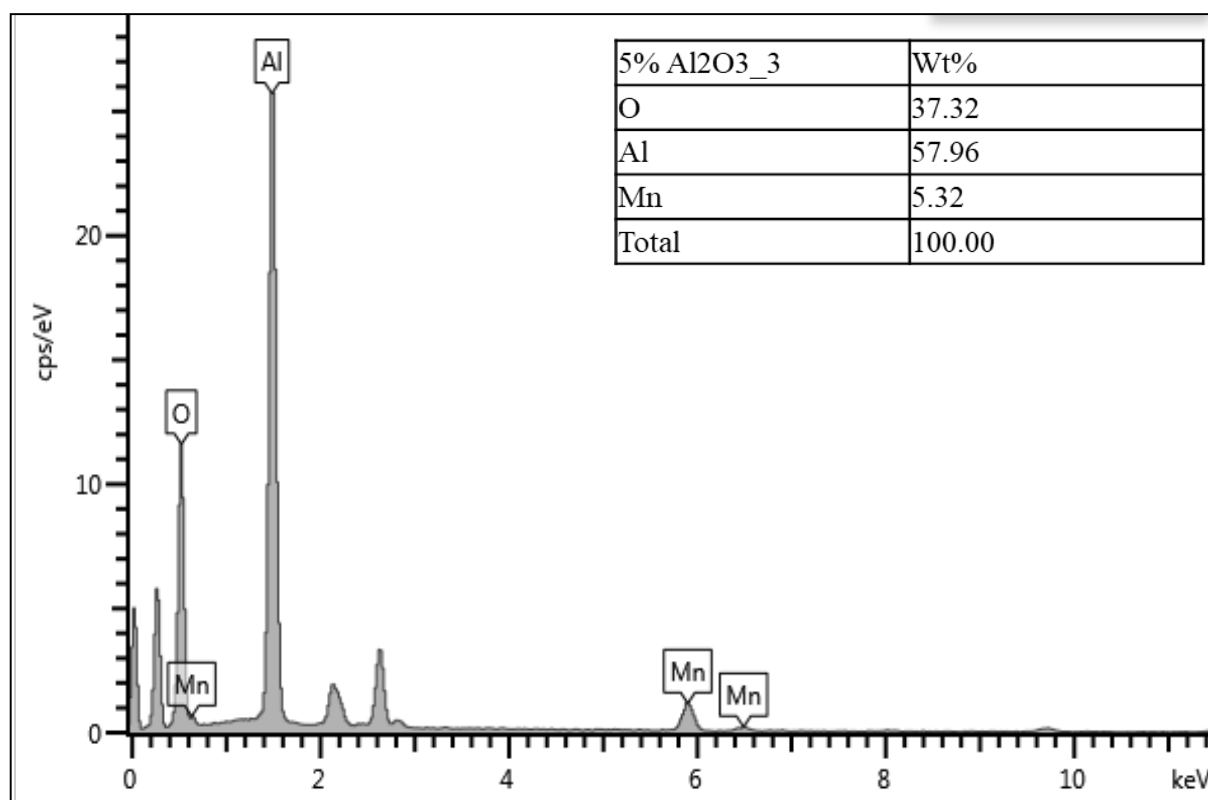


Figure S3 (b). SEM-EDX image for 5 % Mn/γ-Al₂O₃ catalyst.

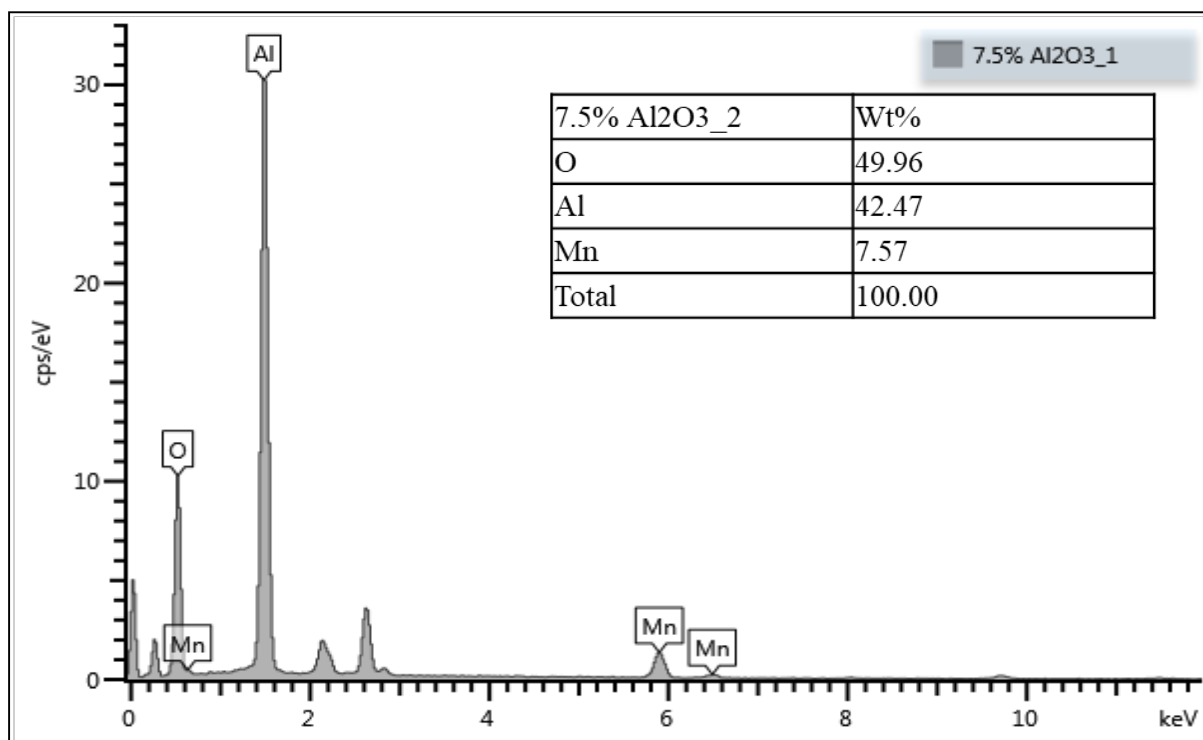


Figure S3 (c). SEM-EDX image for 7.5 % Mn/ γ -Al₂O₃ catalyst.

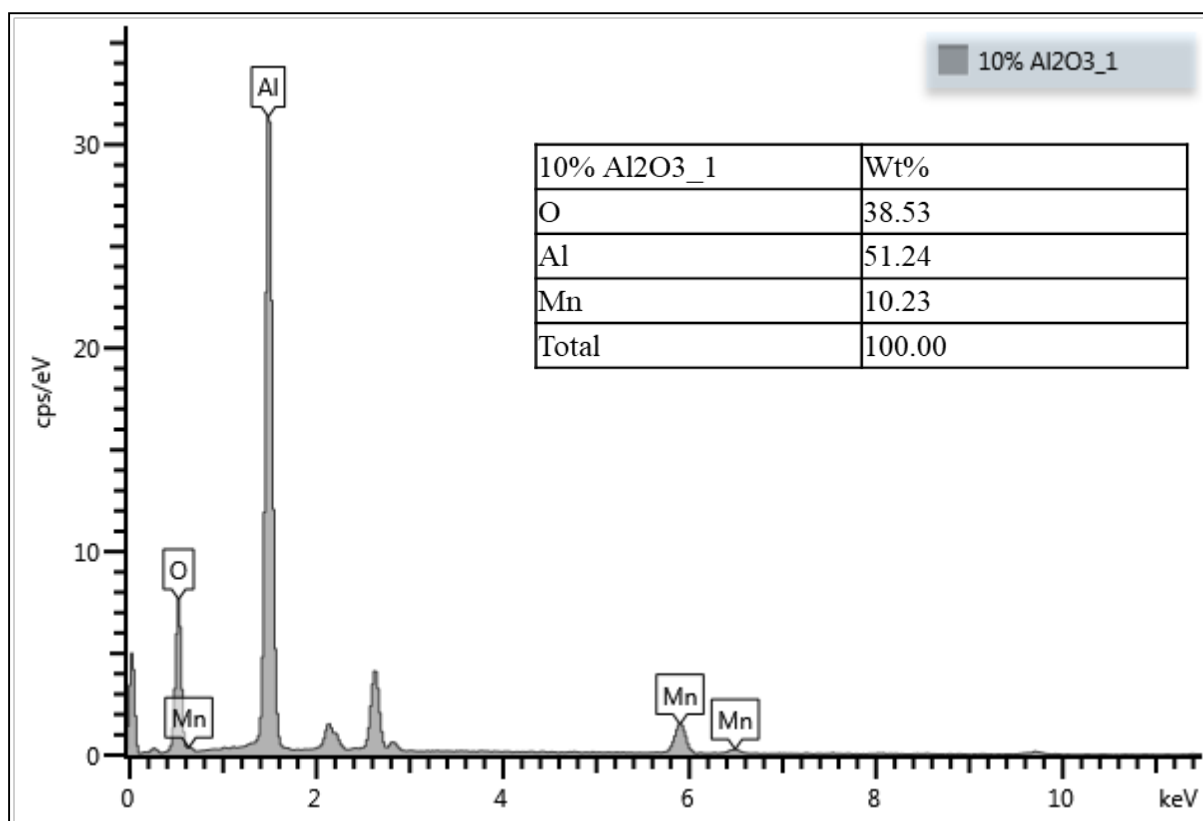


Figure S3 (d). SEM-EDX image for 10 % Mn/ γ -Al₂O₃ catalyst.

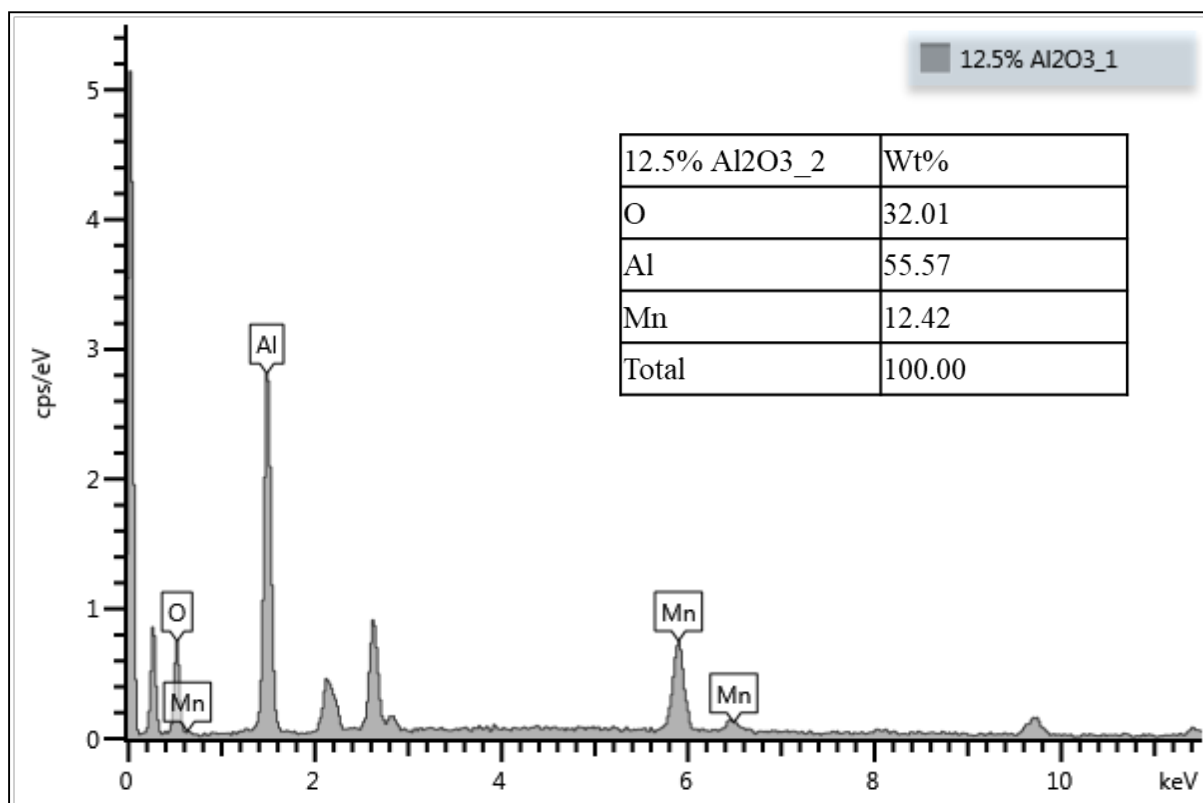


Figure S3 (e). SEM-EDX image for 12.5 % Mn/γ-Al₂O₃ catalyst.

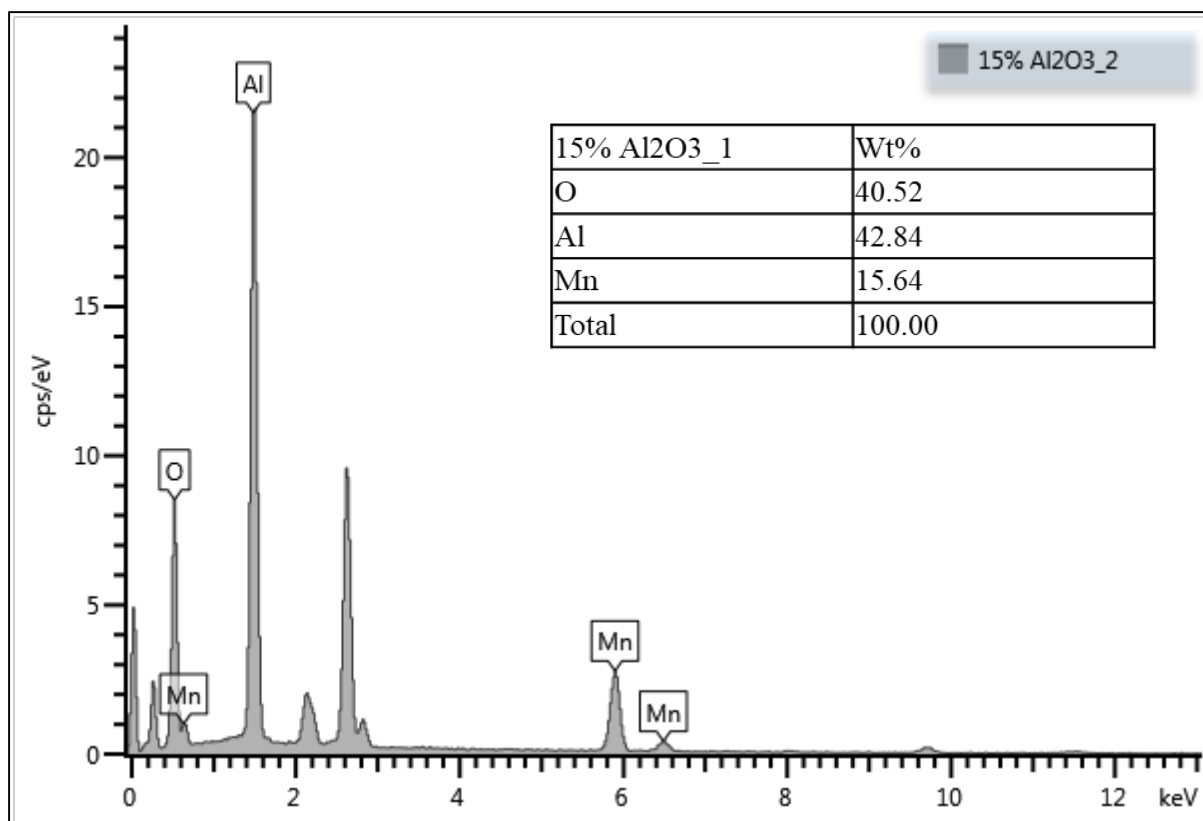


Figure S3 (f). SEM-EDX image for 15% Mn/γ-Al₂O₃ catalyst.

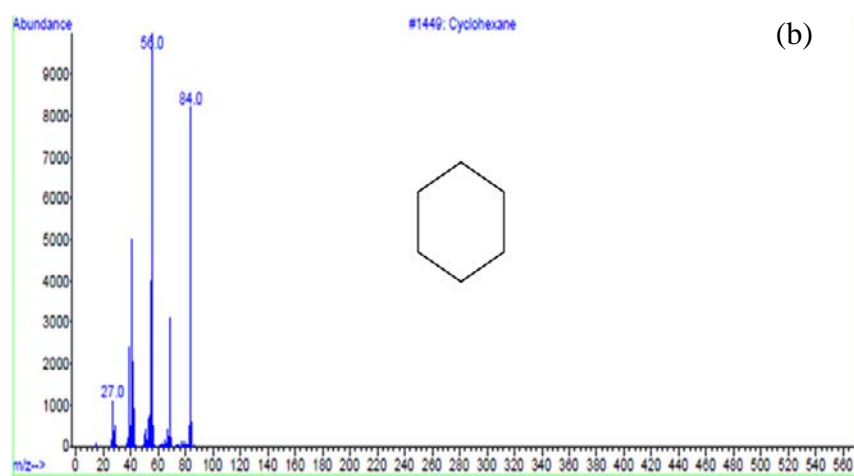
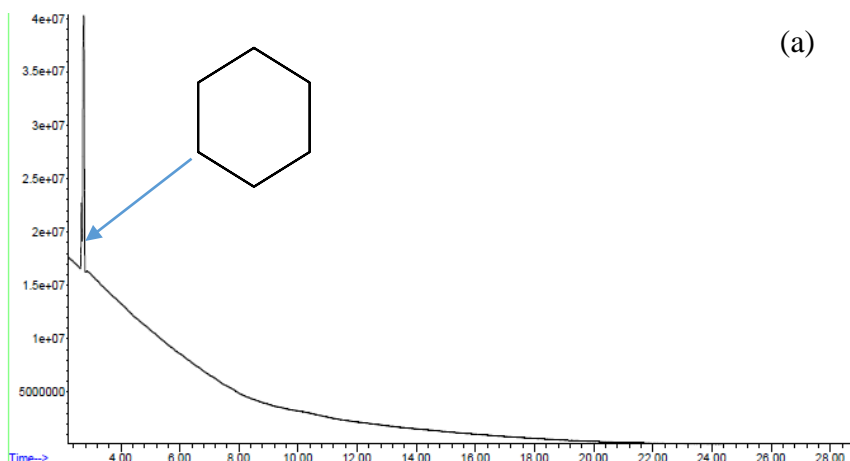


Figure S4. (a) Gas chromatogram and (b) mass spectrum of cyclohexane before ozonation.

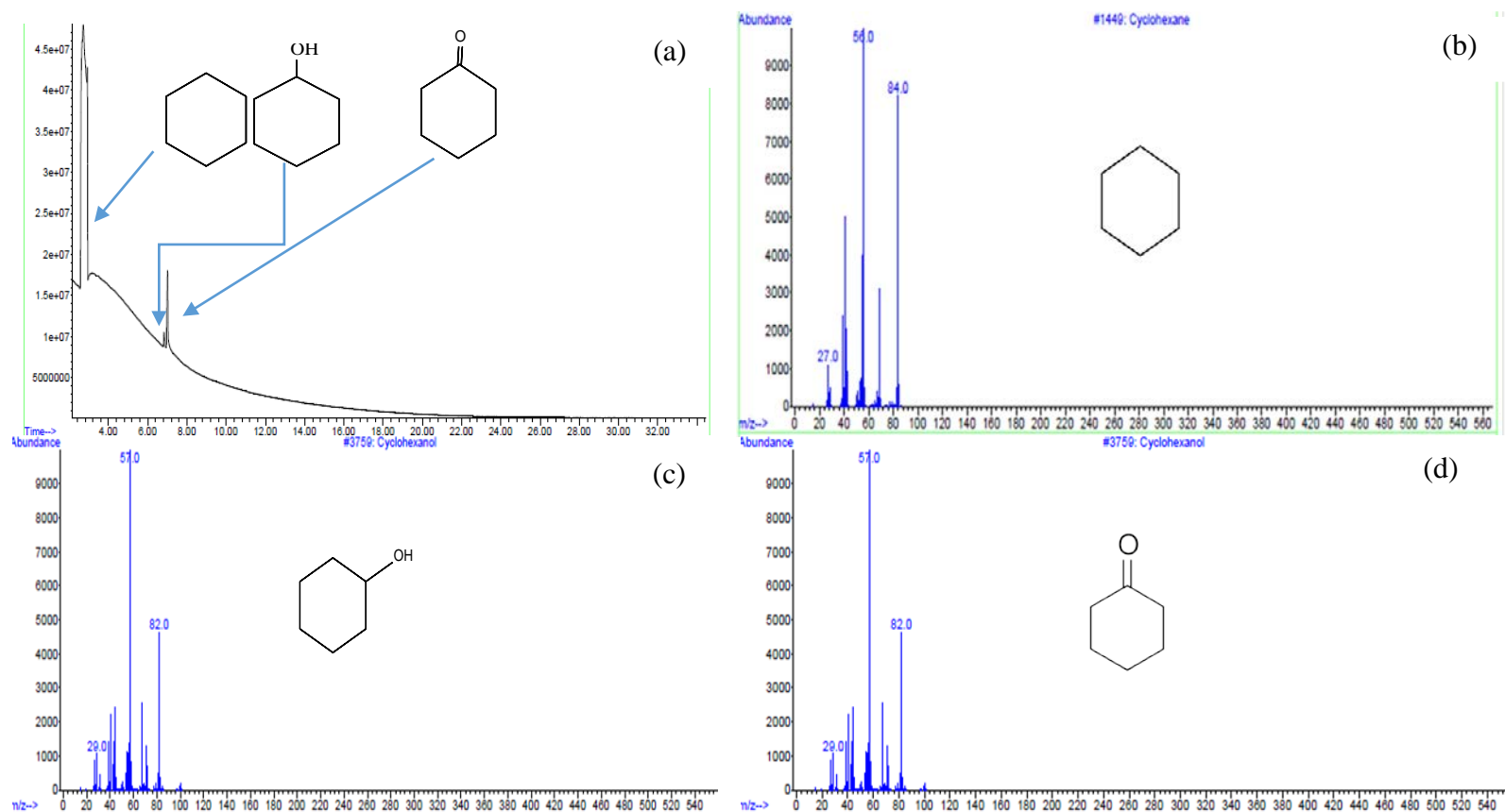


Figure S5. (a) Gas chromatogram and mass spectra of (b) cyclohexane (c) cyclohexanol and (d) cyclohexanone after 30 minutes of ozonation using 2.5% Mn/ γ -Al₂O₃ catalyst at pH 3.

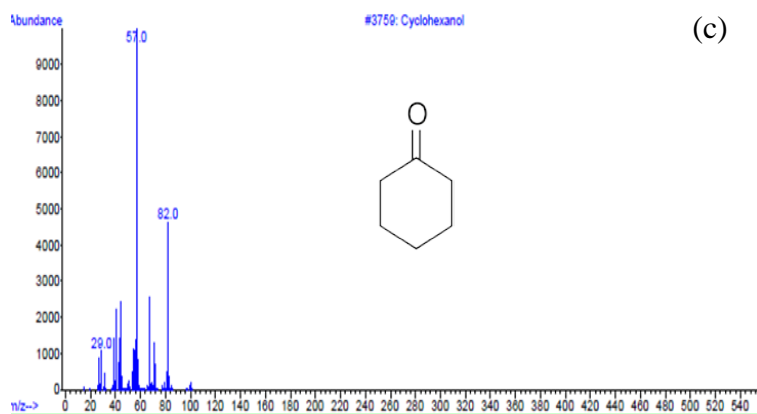
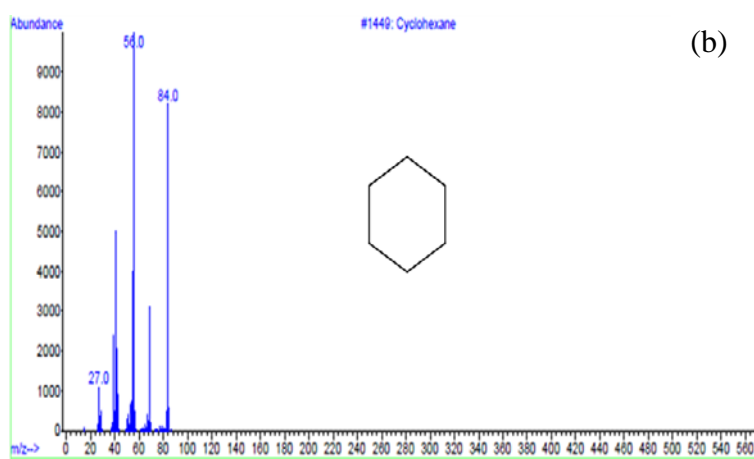
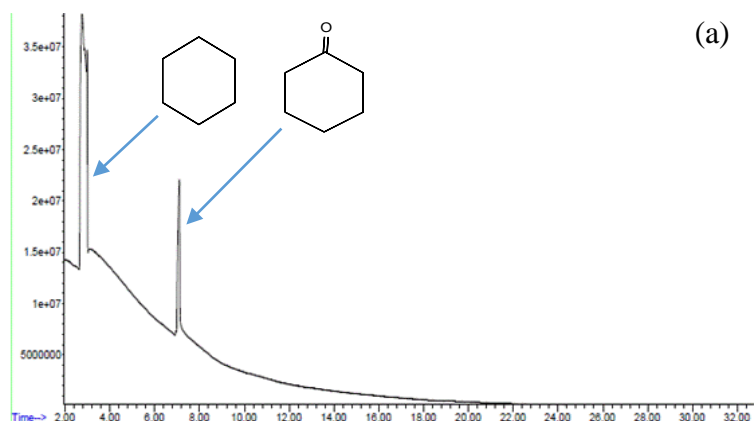


Figure S6. (a) Gas chromatogram and mass spectra of (b) cyclohexane and (c) cyclohexanone after 1 hour of ozonation using 2.5% Mn/ γ -Al₂O₃ catalyst at pH 3.