Olefin Metathesis in Confined Spaces: The Encapsulation of Hoveyda-Grubbs Catalyst in Peanut, Square, and Capsule Shaped Hollow Silica Gels

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SUPPORTING INFORMATION

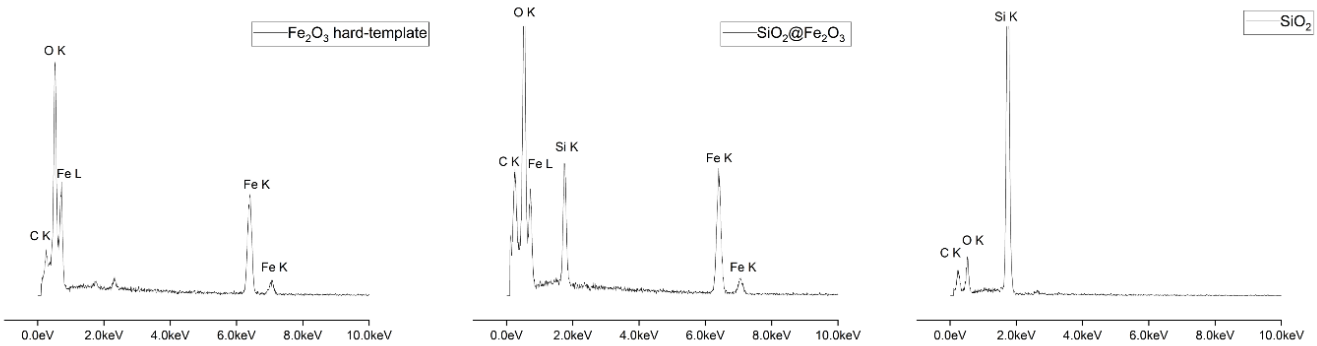

Figure S 1. EDX analysis of Fe_2O_3, $SiO_2@Fe_2O_3$, and hollow silica gels.

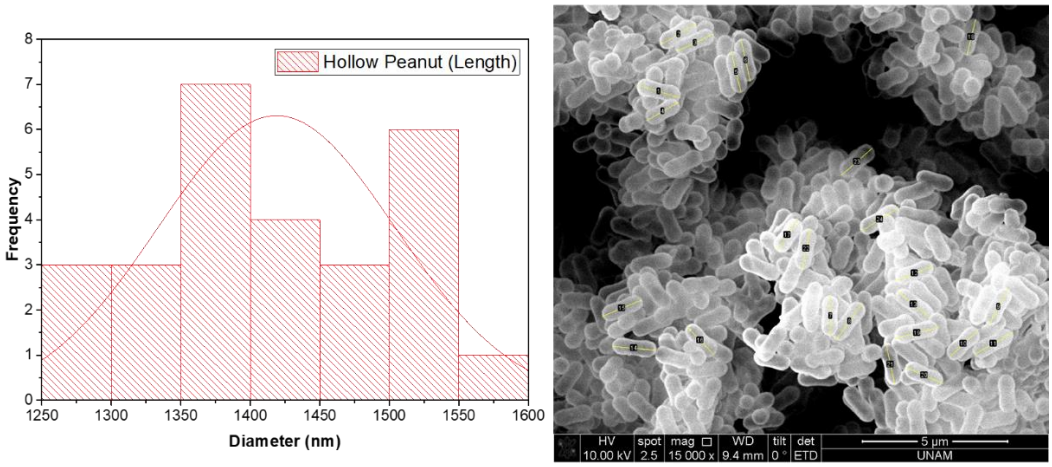

Figure S2. Particle size (length) distribution of hollow peanut shaped silica gels. Left figure size distribution curve, right figure corresponding SEM image (Average particle length is 1375 ±110 nm.)

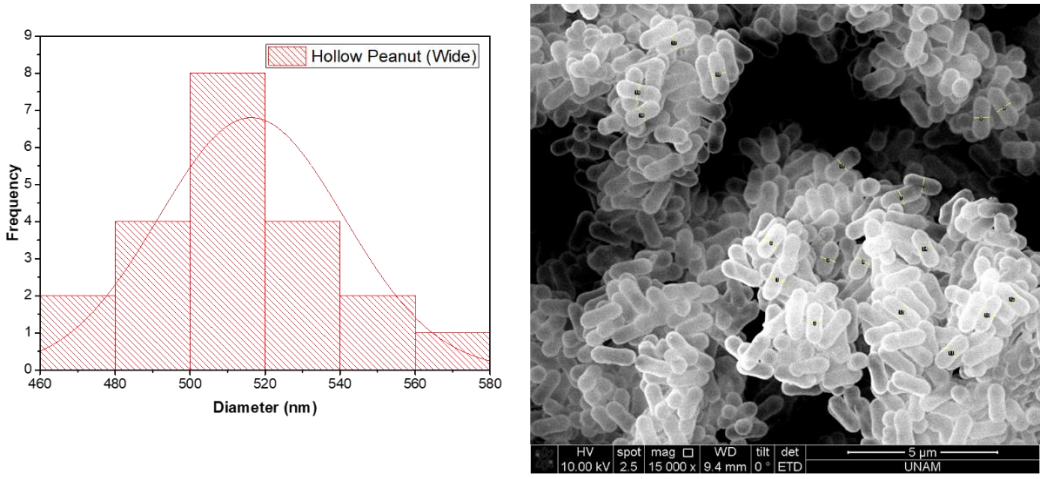

Figure S 3. Particle size (wide) distribution of hollow peanut shaped silica gels (Left figure size distribution curve, right figure corresponding SEM image (Average particle wide is 510 ± 80 nm.)

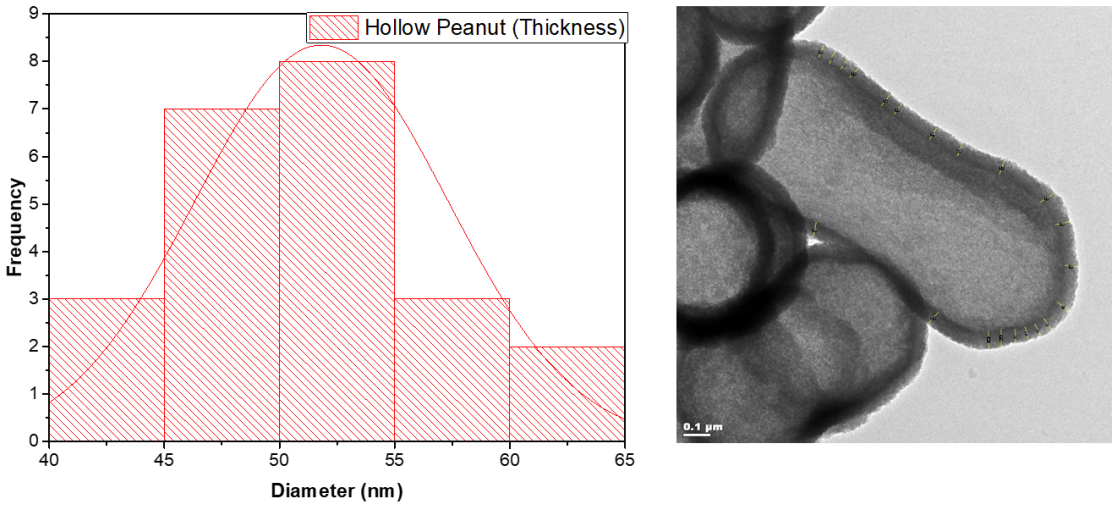

Figure S 4. Shell thickness of peanut silica gels (Left figure size distribution curve, right figure corresponding high contrast TEM image (Average shell thickness is 53 ± 6 nm)

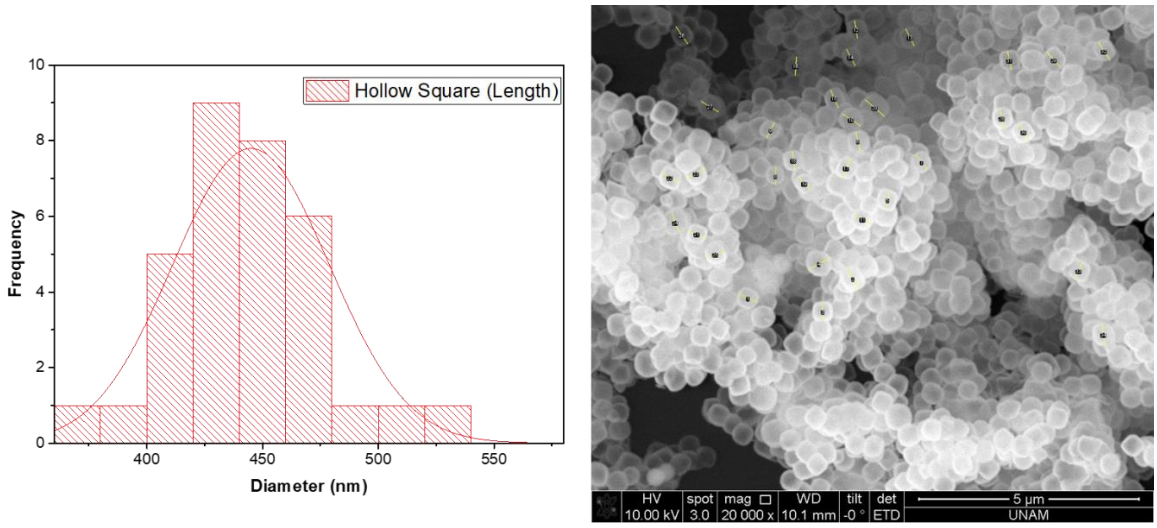

Figure S 5. Particle size (length) distribution of hollow peanut shaped silica gels (Left figure size distribution curve, right figure corresponding SEM image (Average particle length is 430 ± 65 nm.)

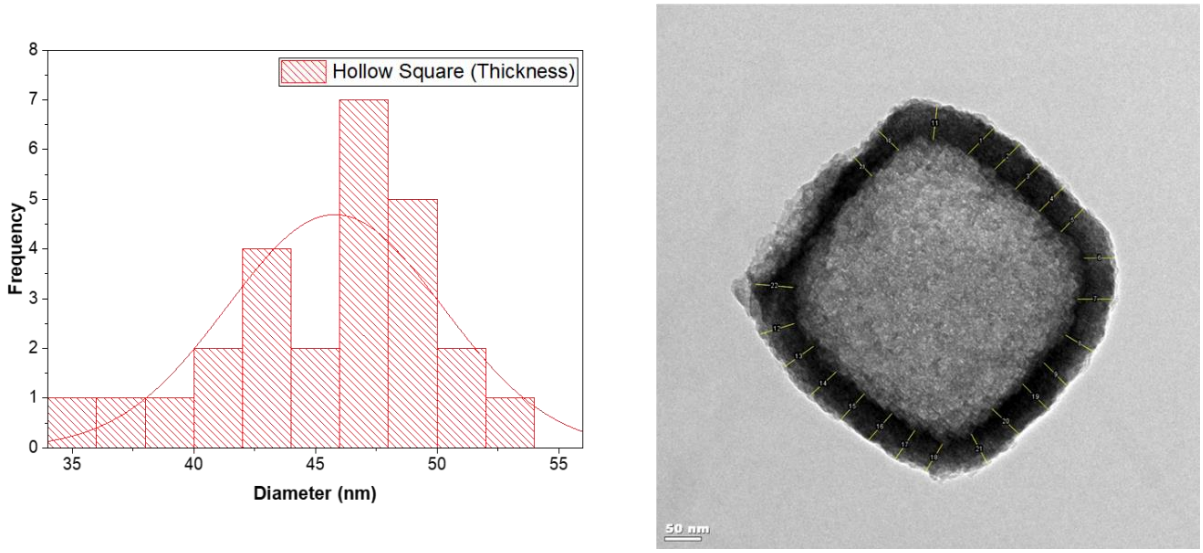

Figure S 6. Shell thickness of square silica gels (Left figure size distribution curve, right figure corresponding high contrast TEM image (Average shell thickness is 47 ± 8 nm)

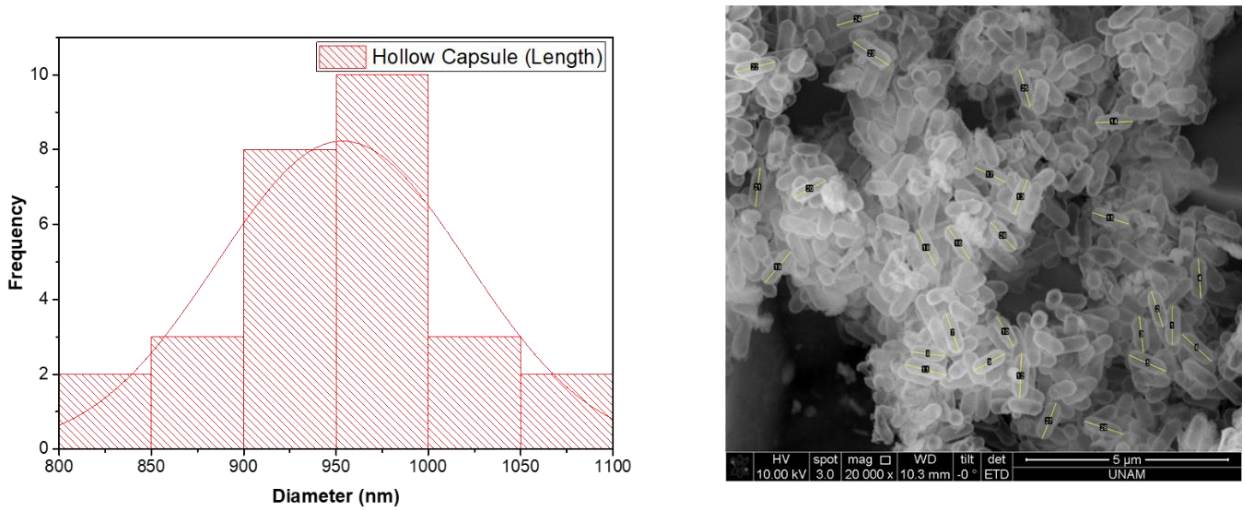

Figure S 7. Particle size (length) distribution of hollow capsule shaped silica gels (Left figure size distribution curve, right figure corresponding SEM image (Average particle length is 975 ± 145 nm.)

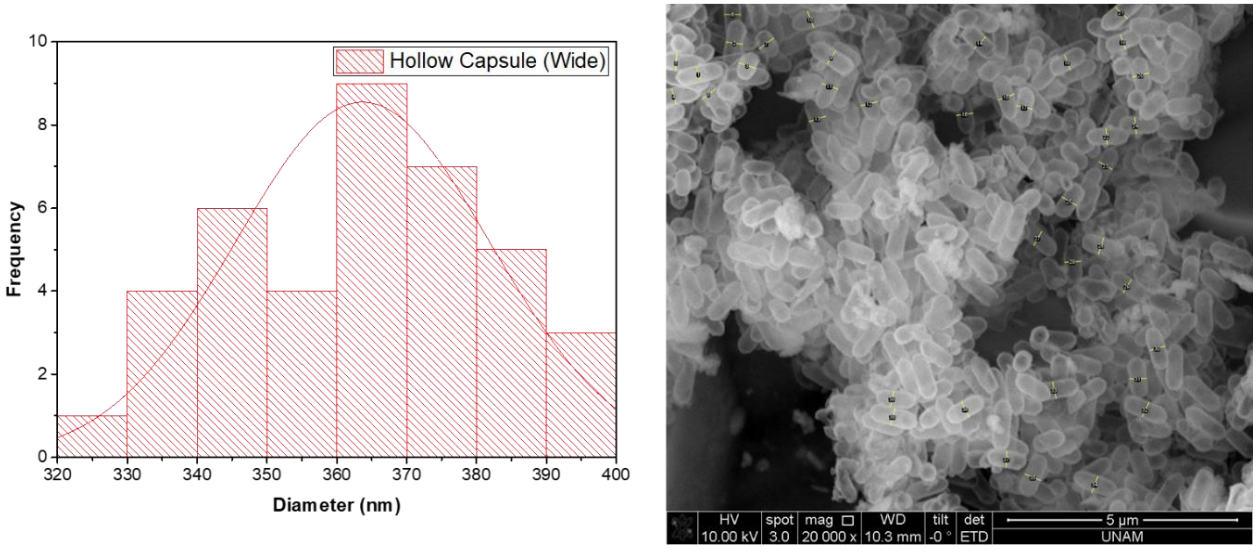

Figure S 8. Particle size (wide) distribution of hollow peanut shaped silica gels Left figure size distribution curve, right figure corresponding SEM image (Average particle length is 1375 ±110 nm.)

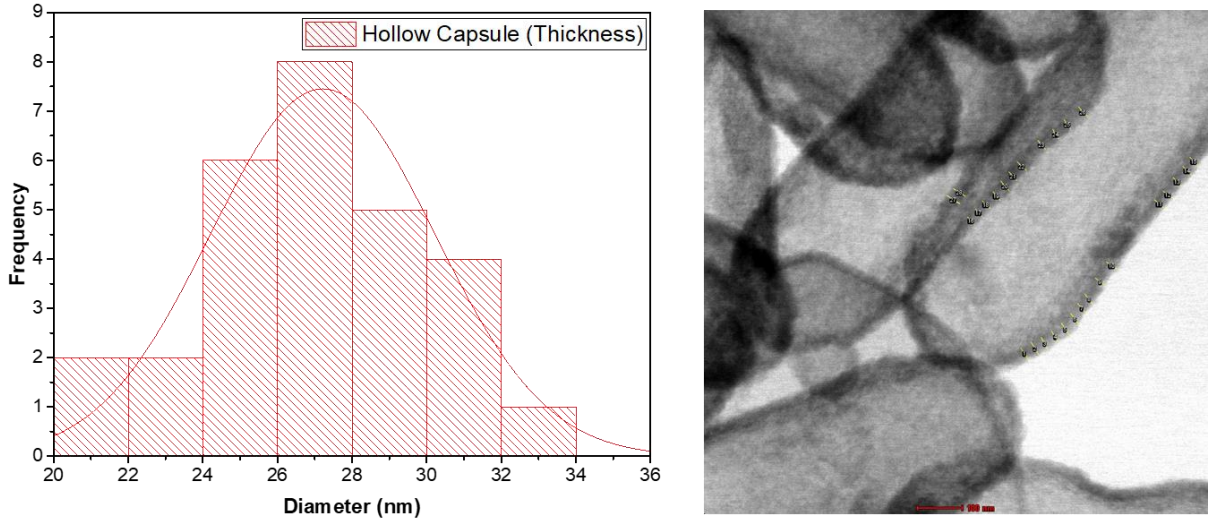

Figure S 9. Shell thickness of capsule silica gels (Left figure size distribution curve, right figure corresponding high contrast TEM image (Average shell thickness is 27 ± 9 nm)

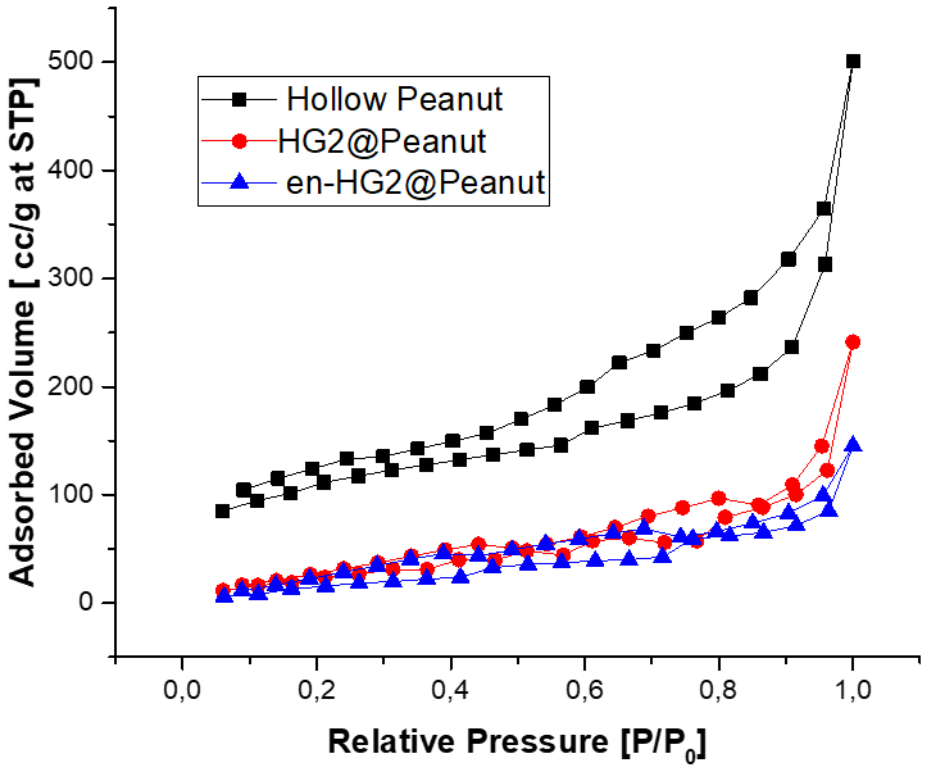

Figure S 10. N_2 adsorption/desorption isotherms of peanut shaped hollow silica gels

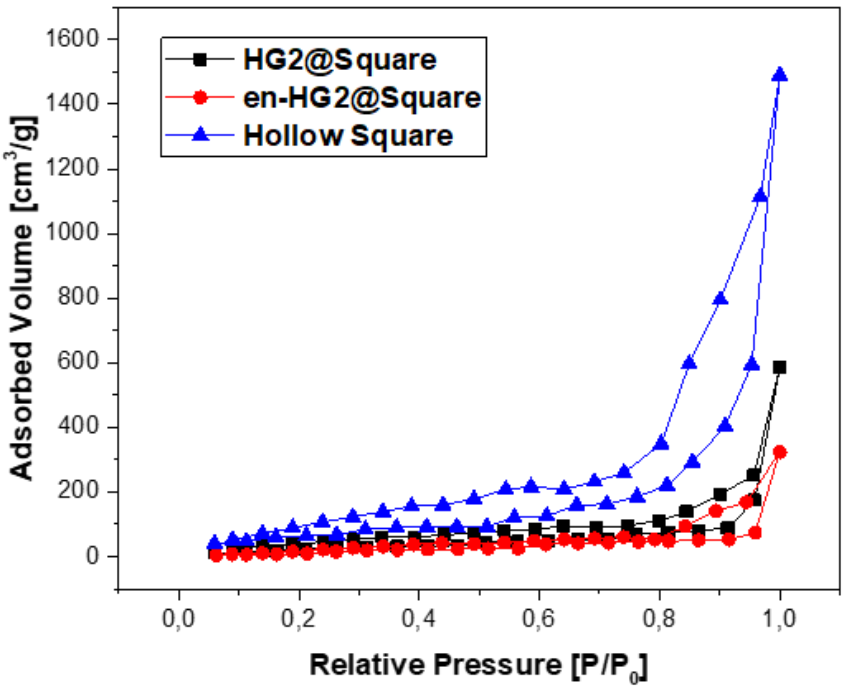

Figure S 11. N_2 adsorption/desorption isotherms of square shaped hollow silica gels

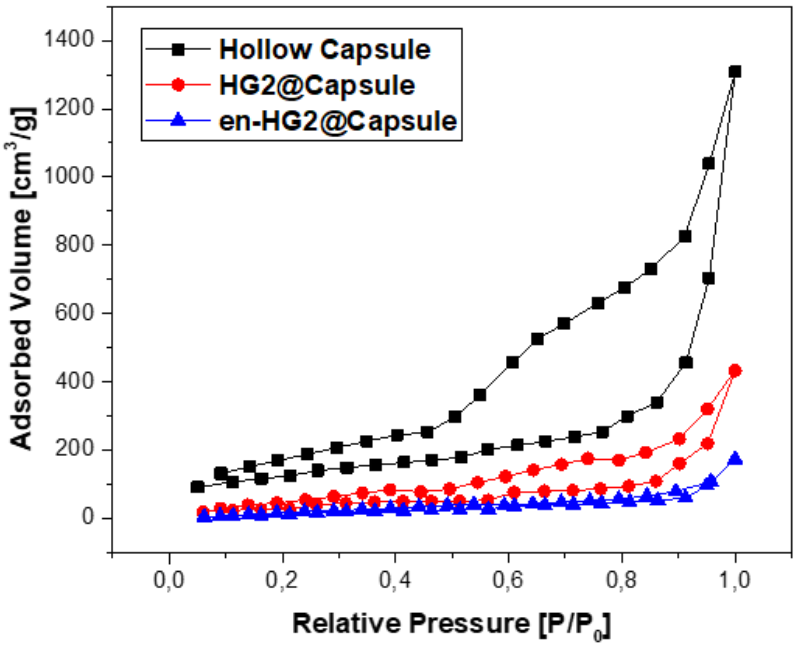

Figure S 12. N_2 adsorption/desorption isotherms of capsule shaped hollow silica gels

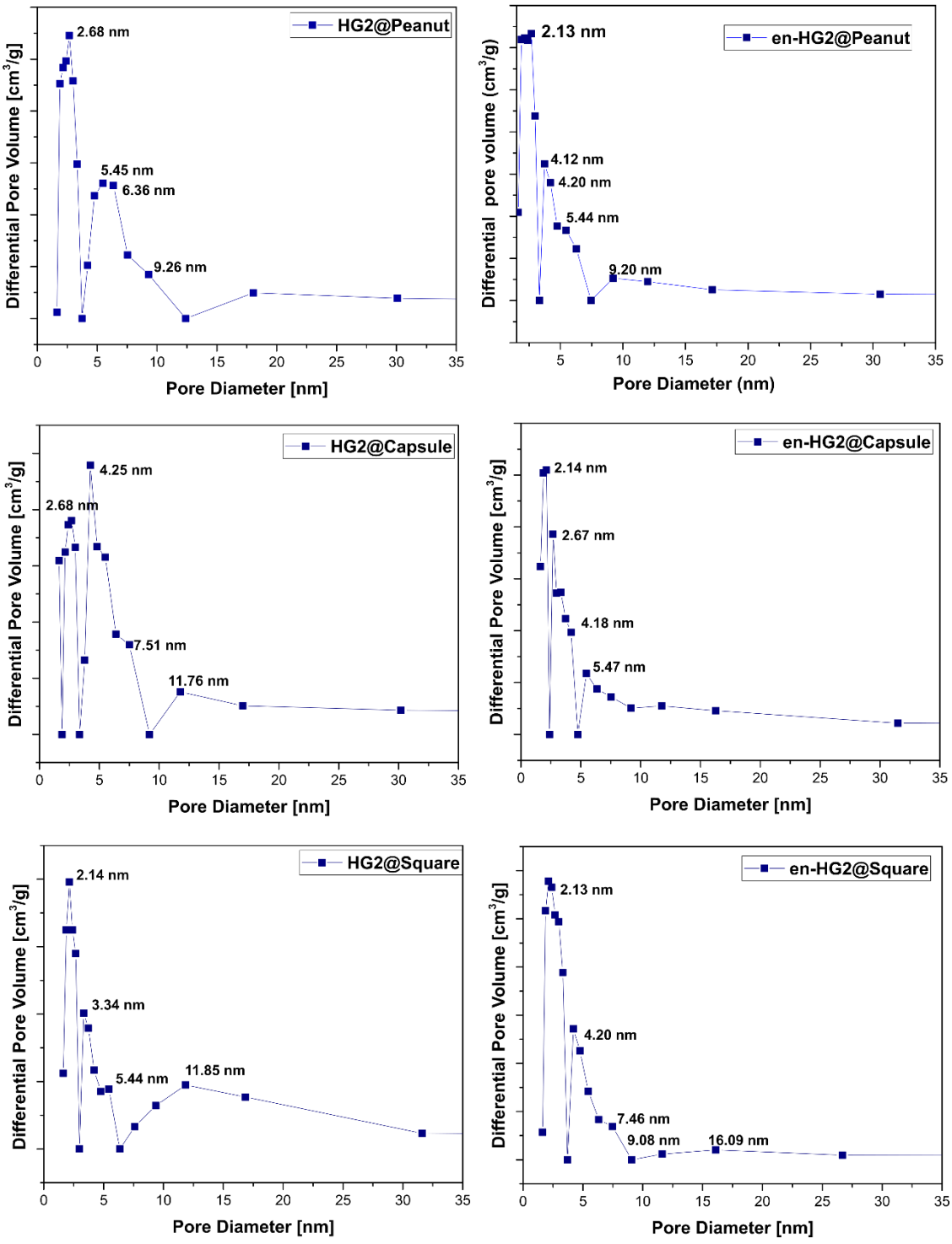

Figure S 13. Pore size distribution curves for HG2 encapsulated silica gels.

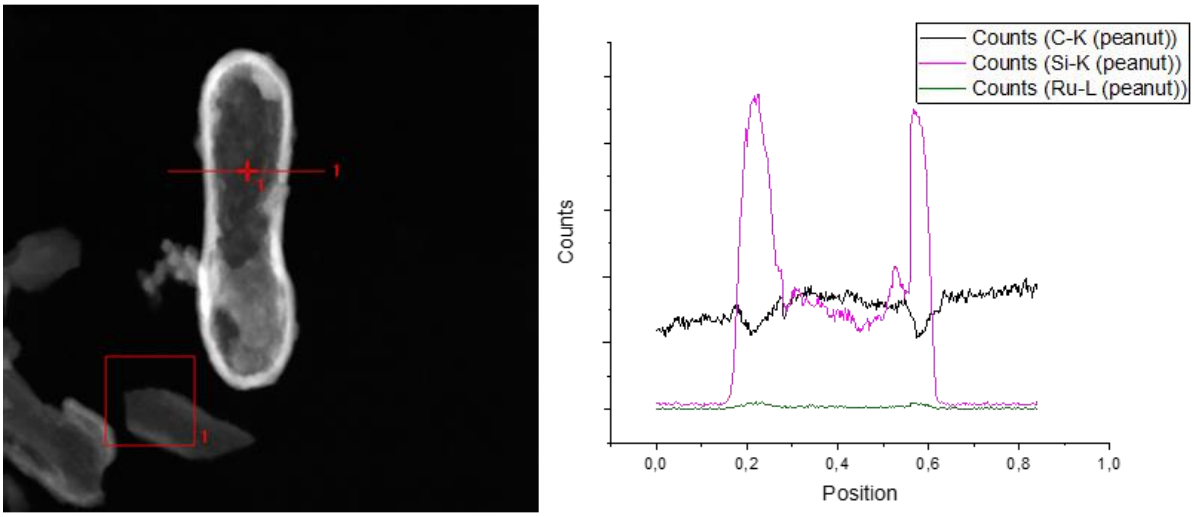

Figure S 14. High resolution TEM-elemental line analysis of en-HG2@Peanut

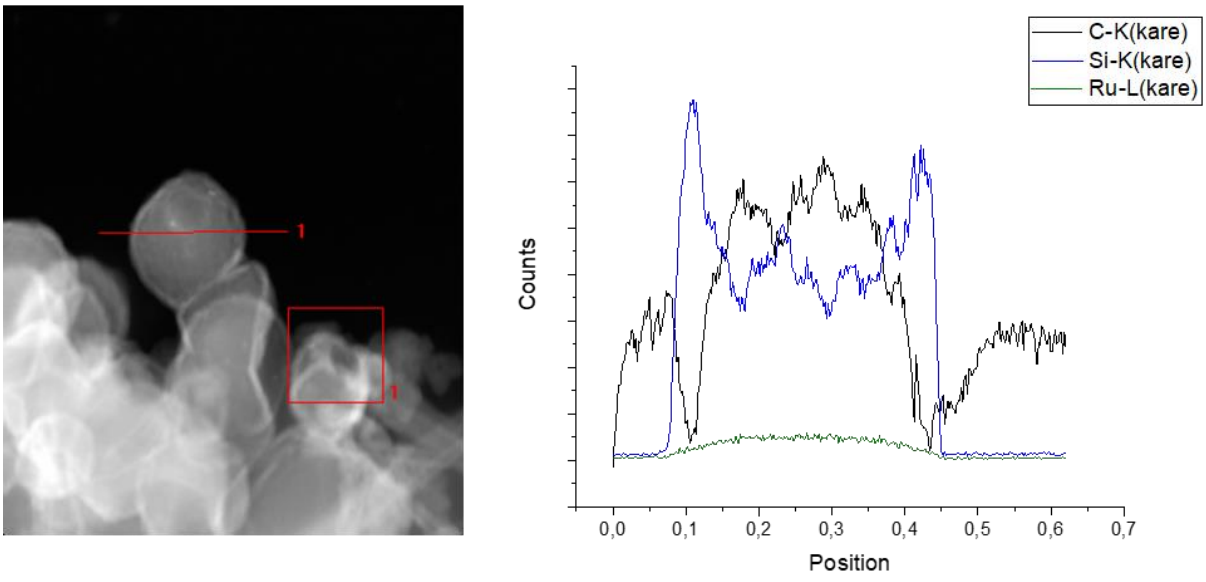

Figure S 15. High resolution TEM-elemental line analysis of en-HG2@Square

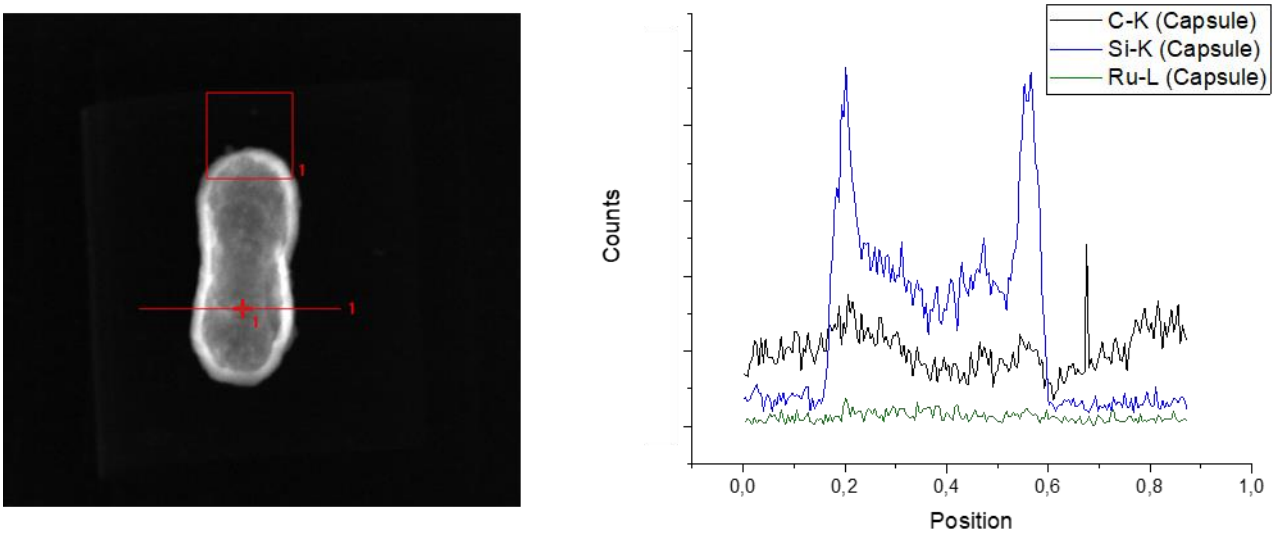

Figure S 16. High resolution TEM-elemental line analysis of en-HG2@Capsule

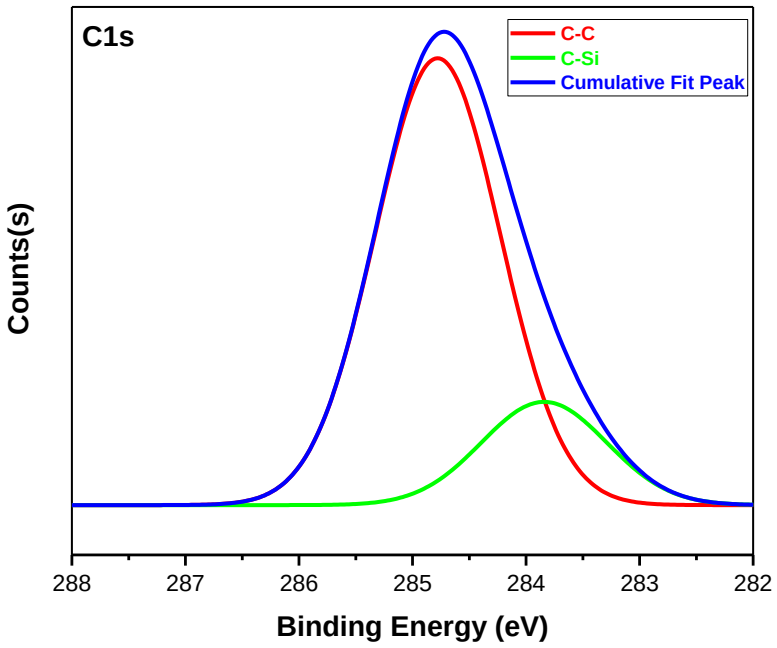

Figure S 17.C1s XPS spectrum of en-HG2@Peanut

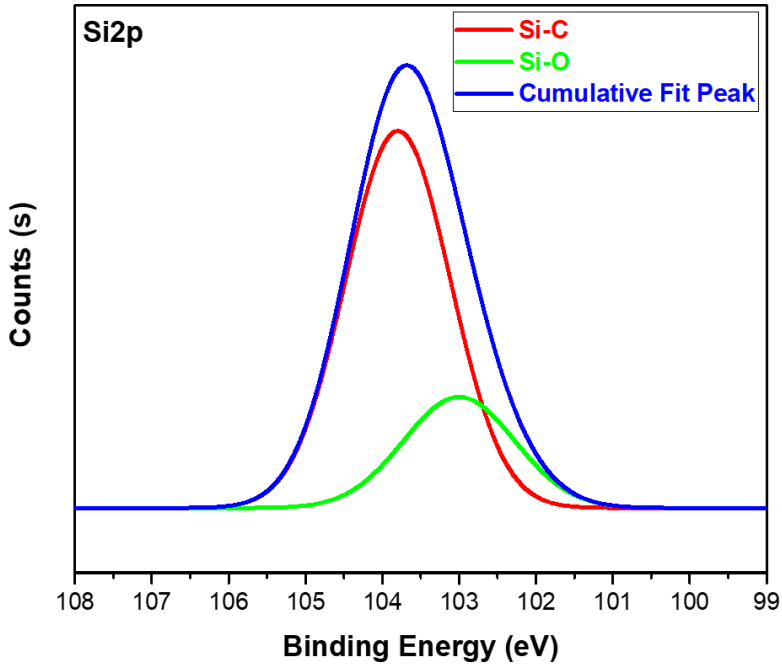

Figure S 18. Si2p XPS spectrum of en-HG2@Peanut

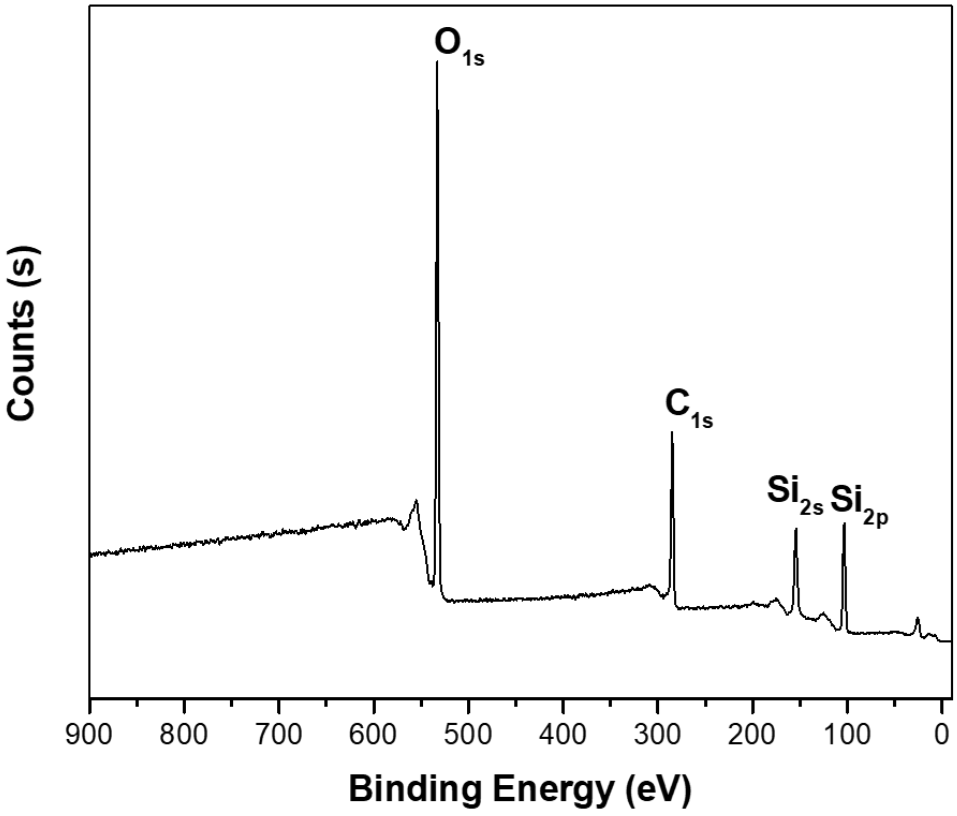

Figure S 19. XPS survey of en-HG2@Peanut

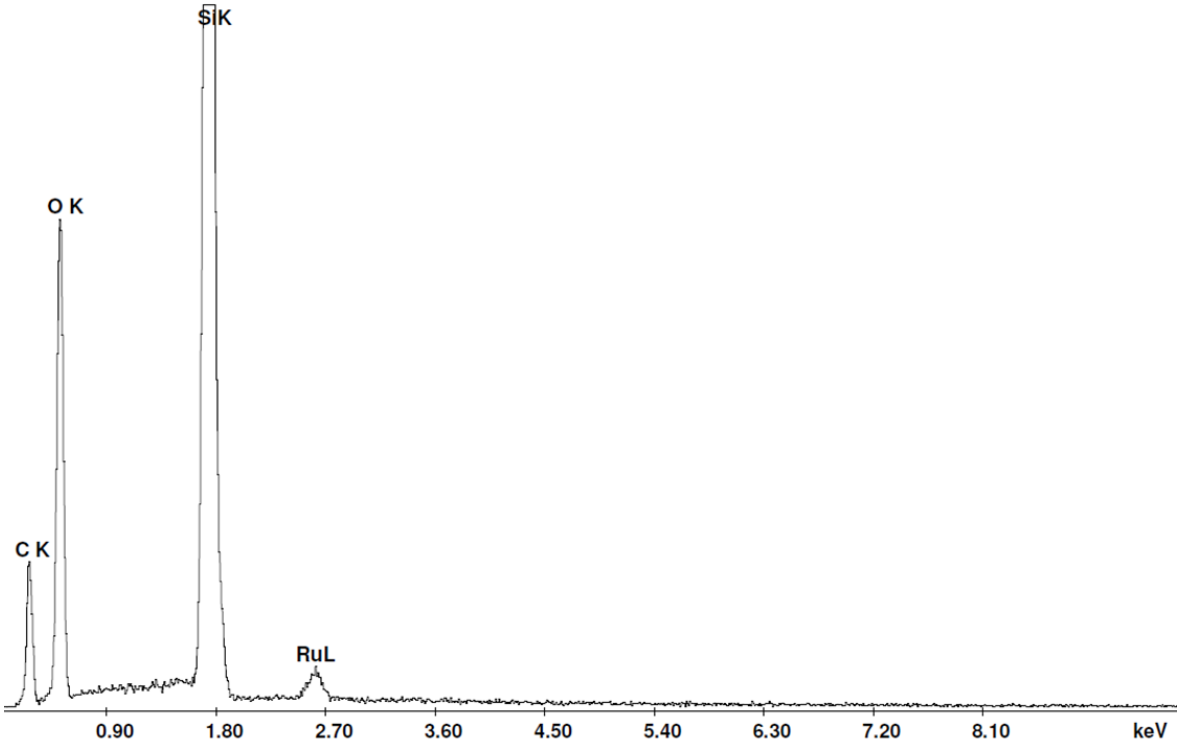

Figure S 20. EDX analysis of en-HG2@Square

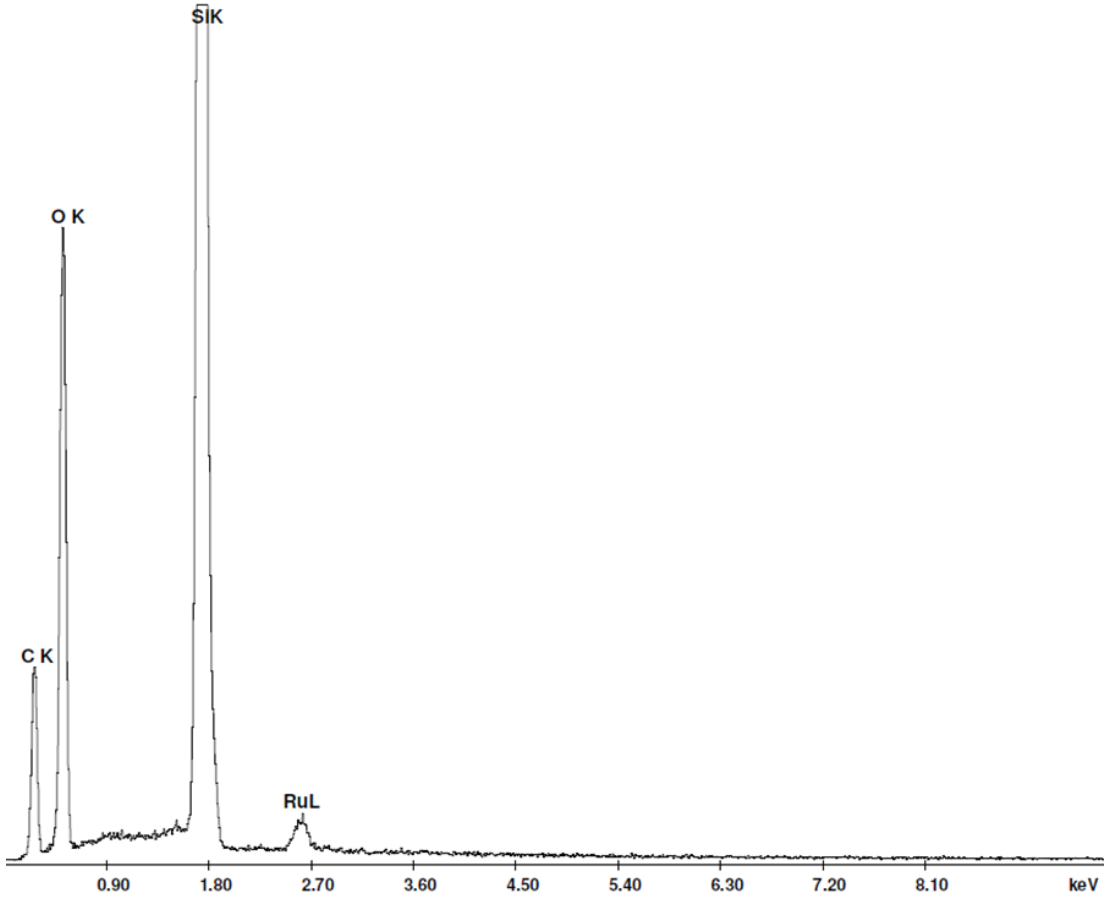

Figure S 21.EDX analysis of en-HG2@Peanut

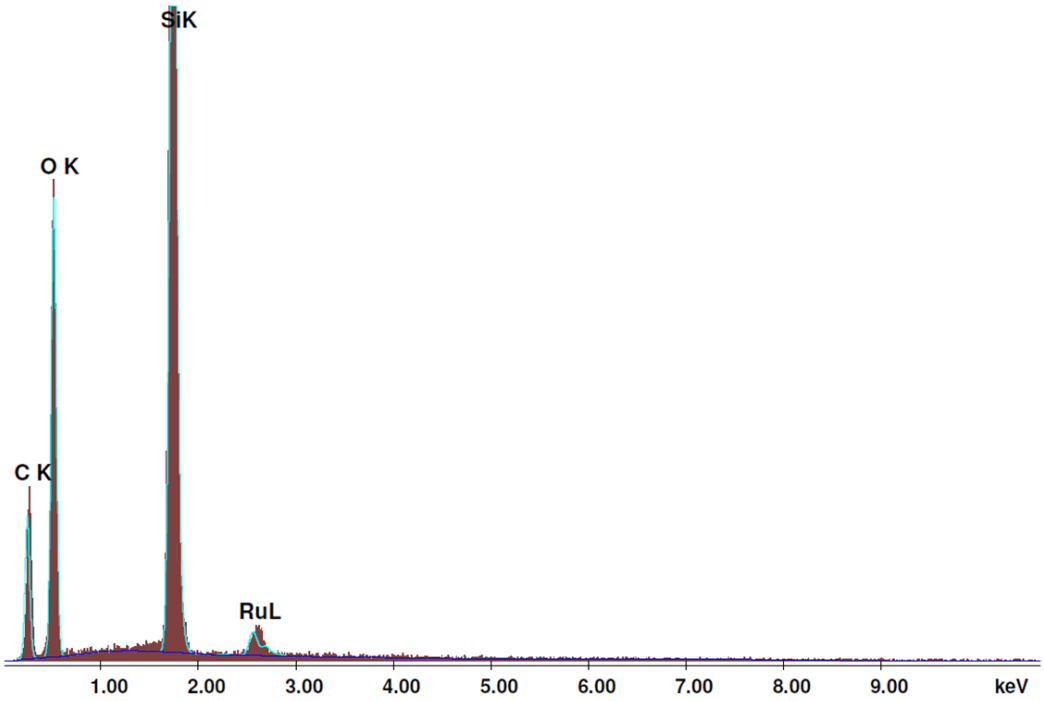

Figure S 22. EDX analysis of en-HG2@Capsule

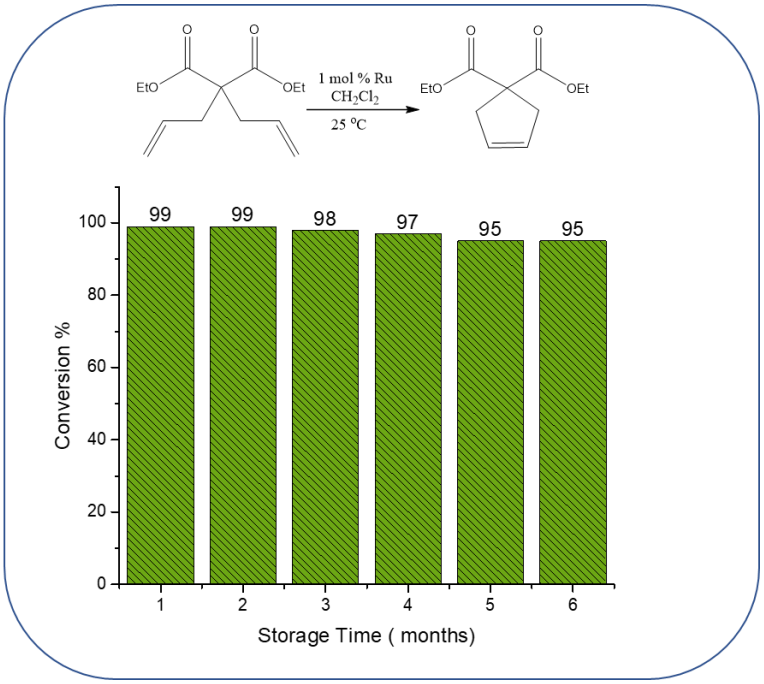

Figure S 23. Long-term storage performance of the catalyst (en-HG2@Peanut)

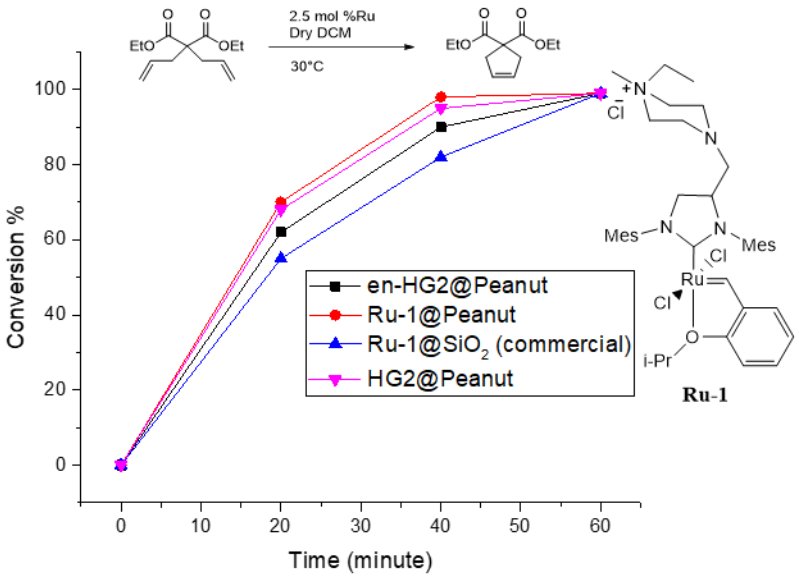

Figure S24. The comparison of RCM performances of Aquamet (Ru-1) and HG2 on peanut shaped silica gel.

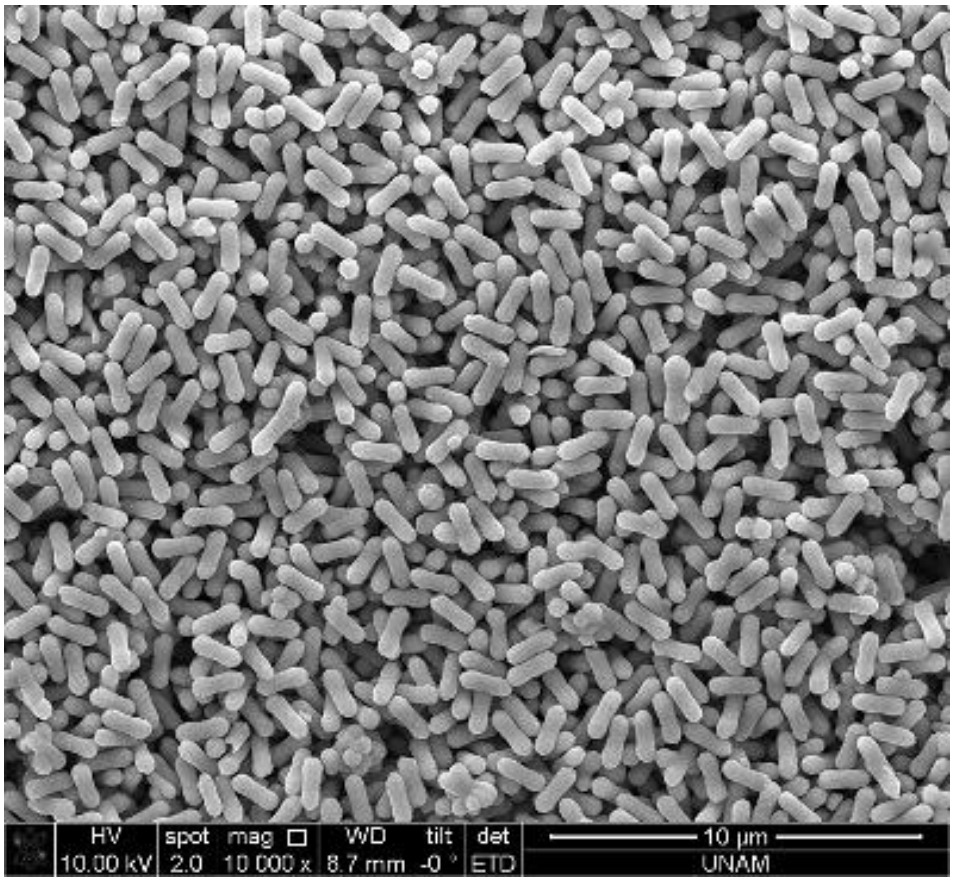

Figure S25. SEM images of peanut shaped hematite particles

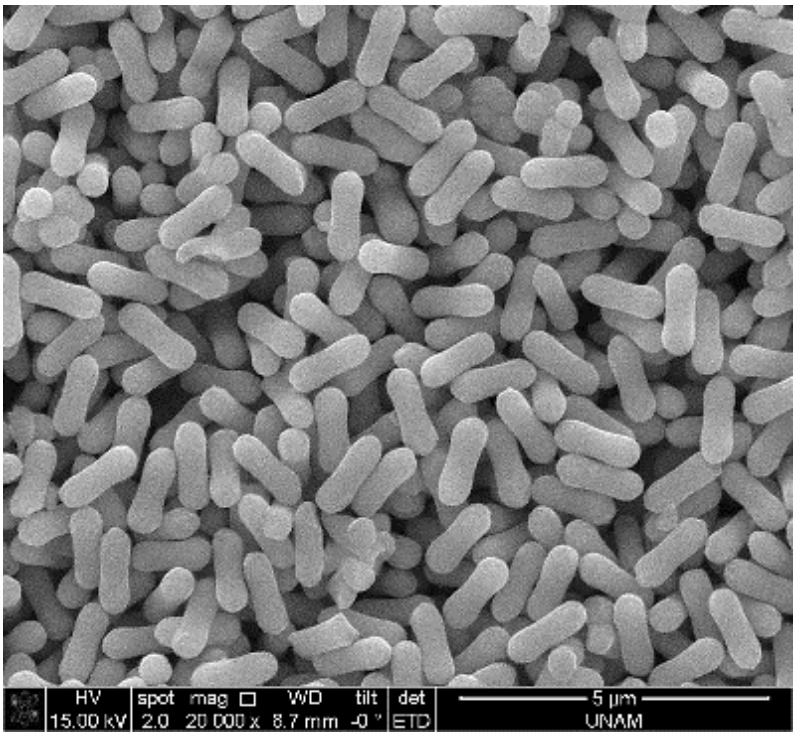

Figure S26. SEM images of peanut shaped SiO_2@Fe_2O_3

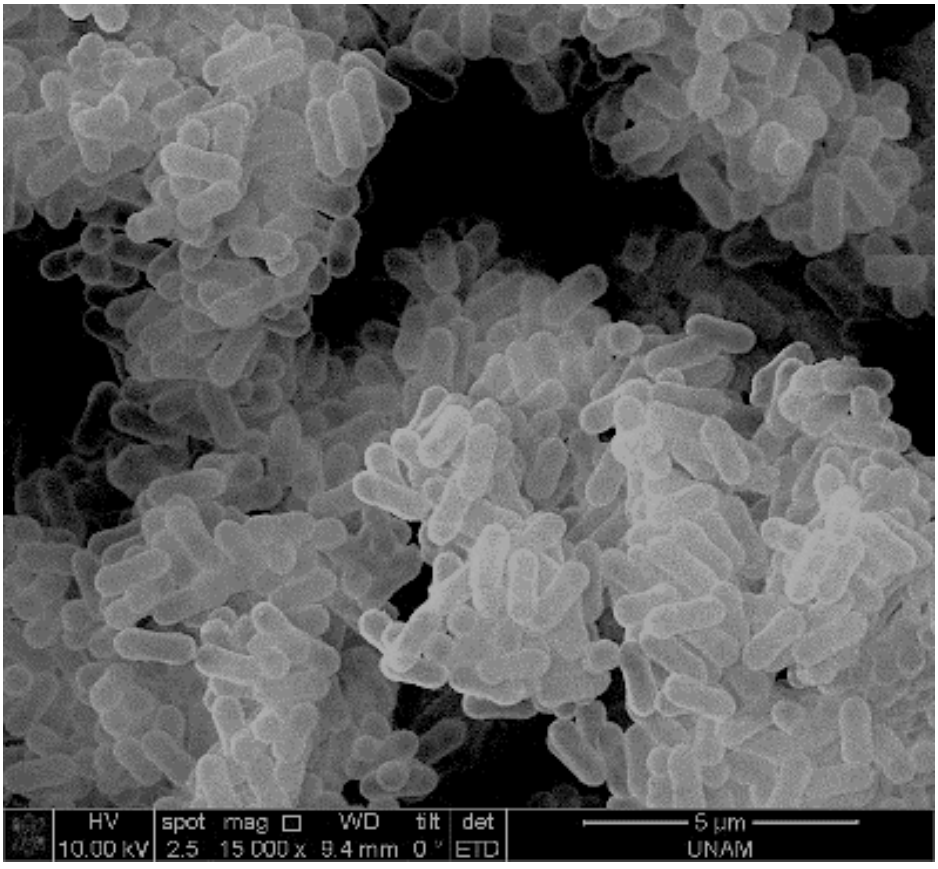

Figure S27. SEM images of peanut shaped hollow silica gels

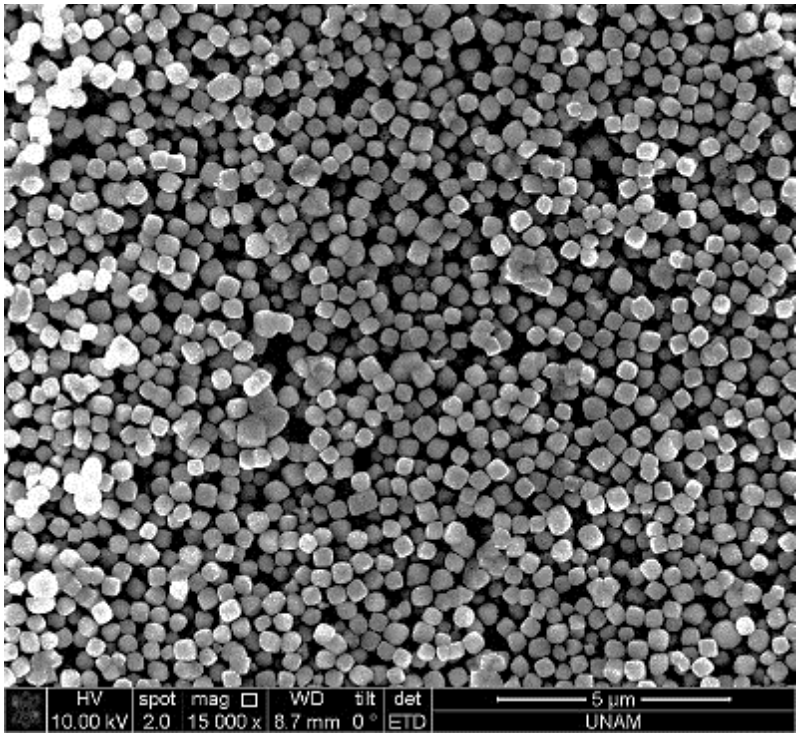

Figure S28. SEM images of square shaped hematite particles

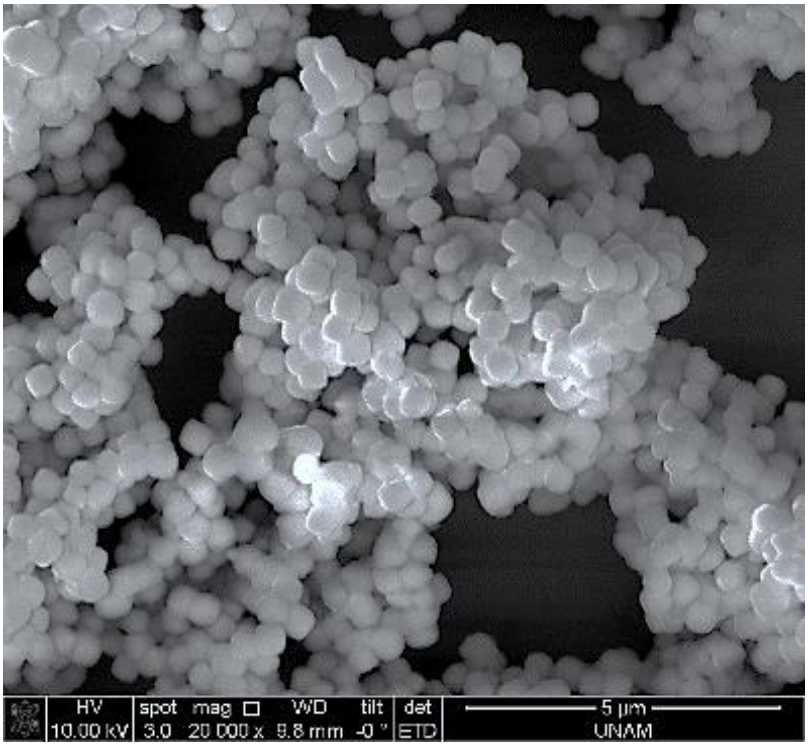

Figure S29. SEM images of square shaped SiO_2@Fe_2O_3

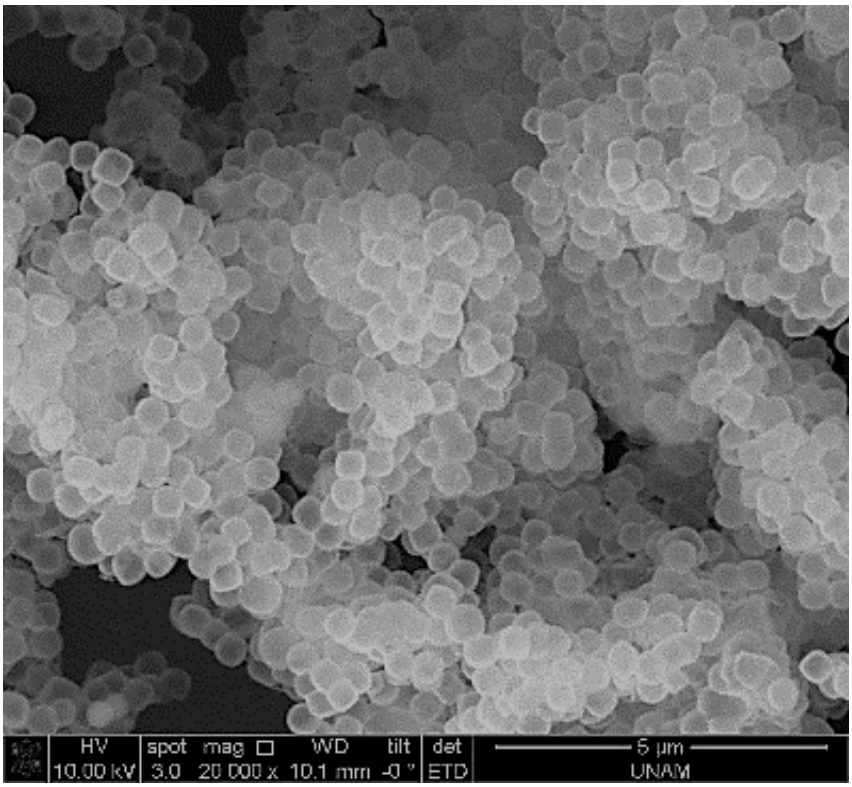

Figure S30. SEM images of square shaped hollow silica gels

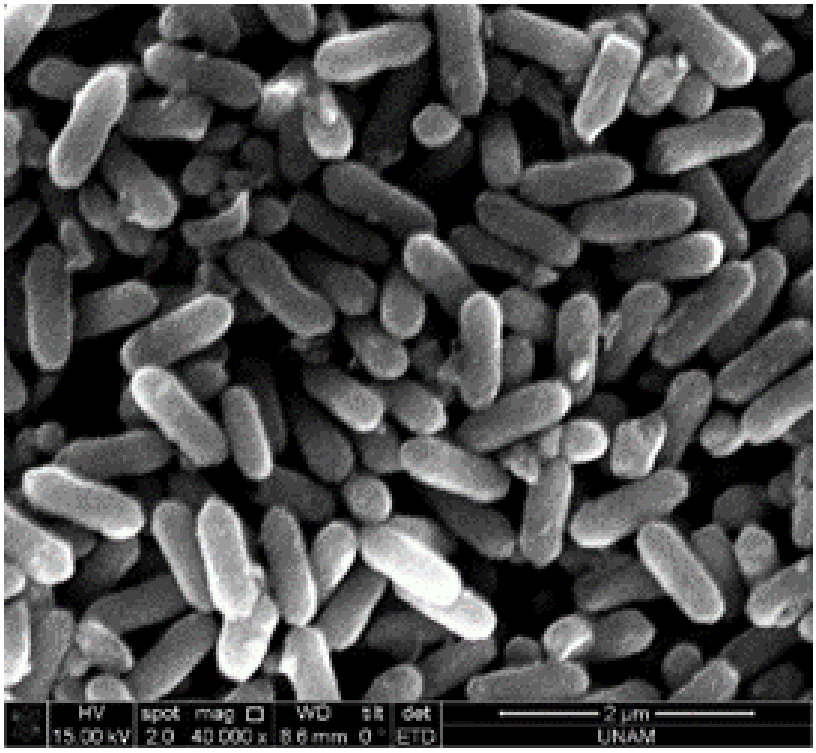

Figure S31. SEM images of capsule shaped hematite particles

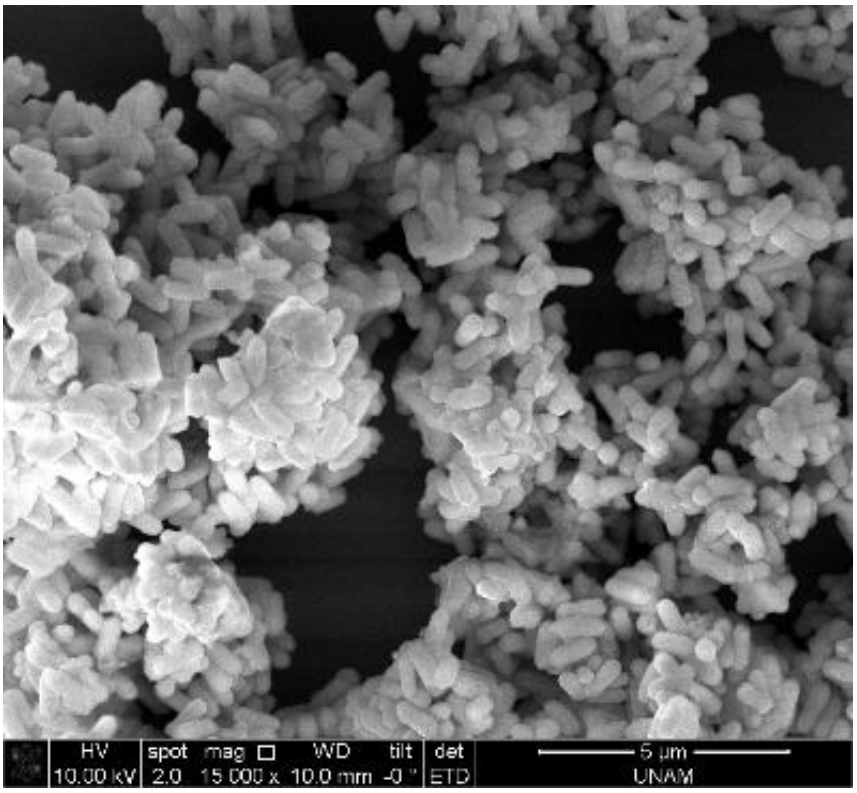

Figure S32. SEM images of capsule shaped SiO_2@Fe_2O_3

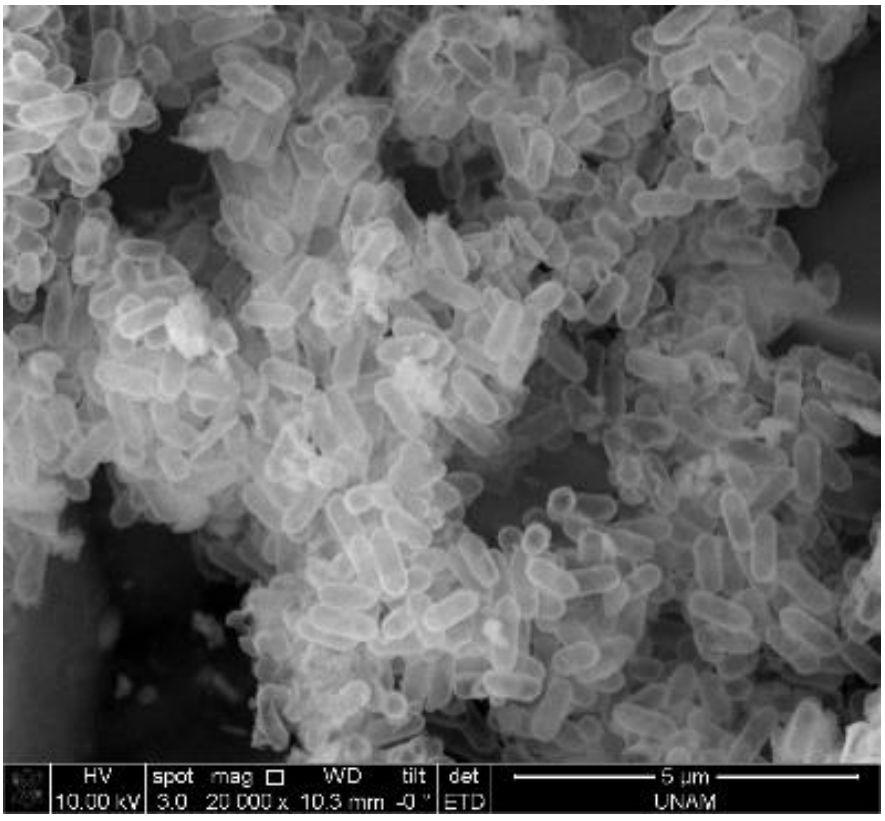

Figure S33. SEM images of capsule shaped hollow silica gels