**Supplementary materials**

# Preparation of Agarose Fluorescent Hydrogel Inserted by POSS and Application to Identification and Adsorption of $Fe^{3+}$

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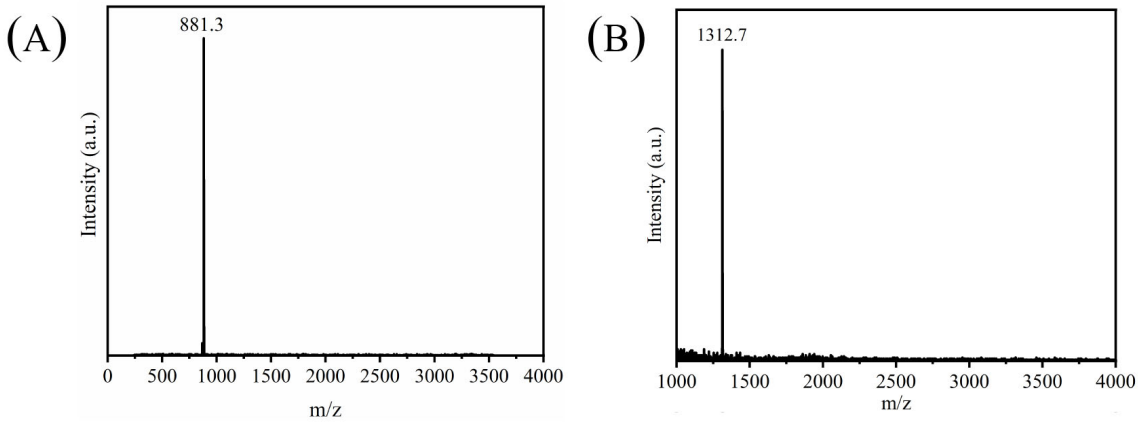


**Figure. S1.** MALDI-TOF spectrum of (A)aminopropyl-POSS (OAP) and (B) citric-acid-POSS (CAP)

**Table S1.** Comparison of various substitutions between calculated and experiment values

| Formula Structure | Experimental Value (m/z) | Calculated Value (m/z) |
|---|---|---|
| $[(C_3H_8N)_8(Si_8O_{12})+H]^+$ | 881.3 | 882.51 |
| $[C_{42}H_{72}N_8O_{25}Si_8+H]^+$ | 1312.7 | 1313.75 |

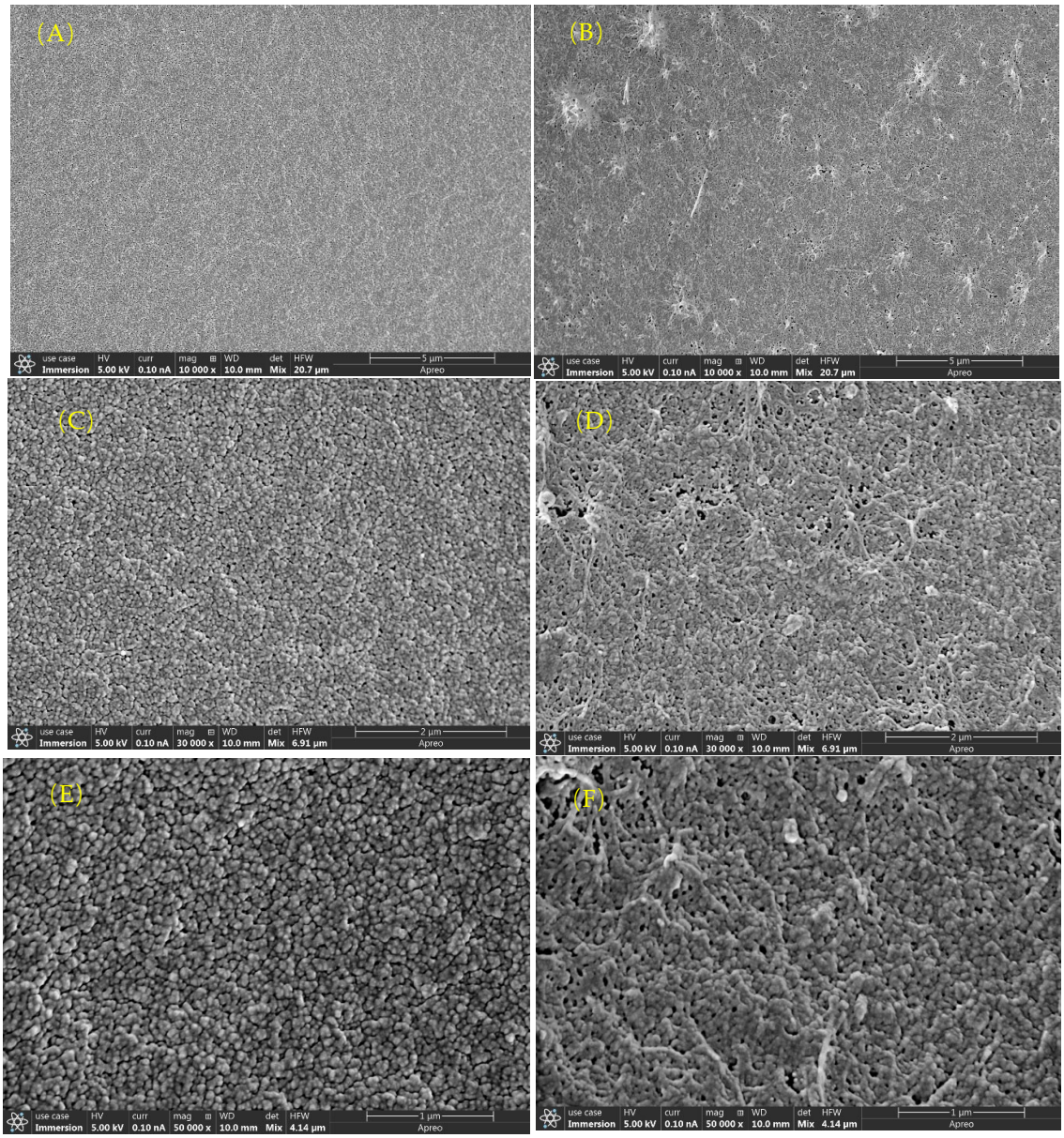


**Figure. S2.** SEM images with different resolutions of AG (A, C and E) and CAG (B, D, and F)