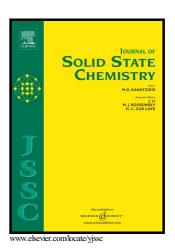
Author's Accepted Manuscript

Keggin Polyoxometalates Based Hybrid Compounds Containing Helix/Nanocages for Colorimetric Biosensing

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ACCEPTED MANUSCRIPT

Keggin Polyoxometalates Based Hybrid Compounds Containing

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Abstract:

Two Keggin polyoxometalate (POMs) based hybrid compounds containing

helix/nanocages as peroxidase-like mimics have been synthesized and structurally

characterized. Single crystal X-ray diffraction analysis reveals that compound 1

exhibits a POM-pillared framework with open nanotube channels (ca. $5.6 \times 5.8~\text{Å}^2$),

in which SiW₁₂ polyanions are sandwiched between the adjacent Cu-fkz sheets with

meso-helix. And an unprecedented twisted octahedral hexamer nanocage (ca. 10×10

Å²) is observed in compound 2. Compared with the other POMs involved

peroxidase-like mimics, both compounds 1 and 2 exhibit higher peroxidase-like

catalytic activities, broader applications range, faster respond time and lower

detection limit, which maybe attribute to the maximized synergistic effects of SiW₁₂

clusters, fkz molecules, metal ions and the distinct structure. Based on the facts,

compounds 1 and 2 as enzyme mimics might expand their application around

physiological pH conditions, and can be used as one kind of effective probe to detect

 H_2O_2 in live organism.

Graphical abstract

Two new Keggin polyoxometalates (POMs) based hybrid compounds containing

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