Supplementary Information

Lawsone Derived Zn (II) and Fe (III) Metal Organic Frameworks with pH Dependent Emission for Controlled Drug Delivery

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Methods

Synthesis of Zn (II)-Lawsone and Fe (III)- Lawsone Frameworks

Since both reactant and product absorb visible light, there is a likelihood of interfering photochemical reactions under intense laboratory lighting for longer hours it is desirable to protect the reaction mixture from light. However, the product formed was later tested for its photochemical stability and was found to be stable on exposure to visible light.

Prussian Blue Staining

The uptake of the FeMOFs by cells was evaluated by Prussian blue staining after incubating the samples with Human Osteosarcoma (HOS) cells. Briefly, HOS cells were seeded onto surface treated coverslips in a 24 well plate with a cell density of $5x10^3$ cells/well in DMEM-HG complete medium and incubated at 37°C in 5% CO_2 atmosphere for 24 h until a confluent culture obtained. The cells were further incubated for 4 h after the addition of samples (FeLw and FeLw 60) with 20 µg mL^{-1} concentration in complete medium. Soon after the incubation, cells were washed with PBS and fixed with 4% paraformaldehyde solution for 30 minutes. The samples were washed with PBS and stained with 10% potassium ferrocyanide solution in HCl for another 10 minutes. The excess potassium ferrocyanide was removed; cells were again washed with autoclaved Milli-Q water and observed under an inverted microscope.

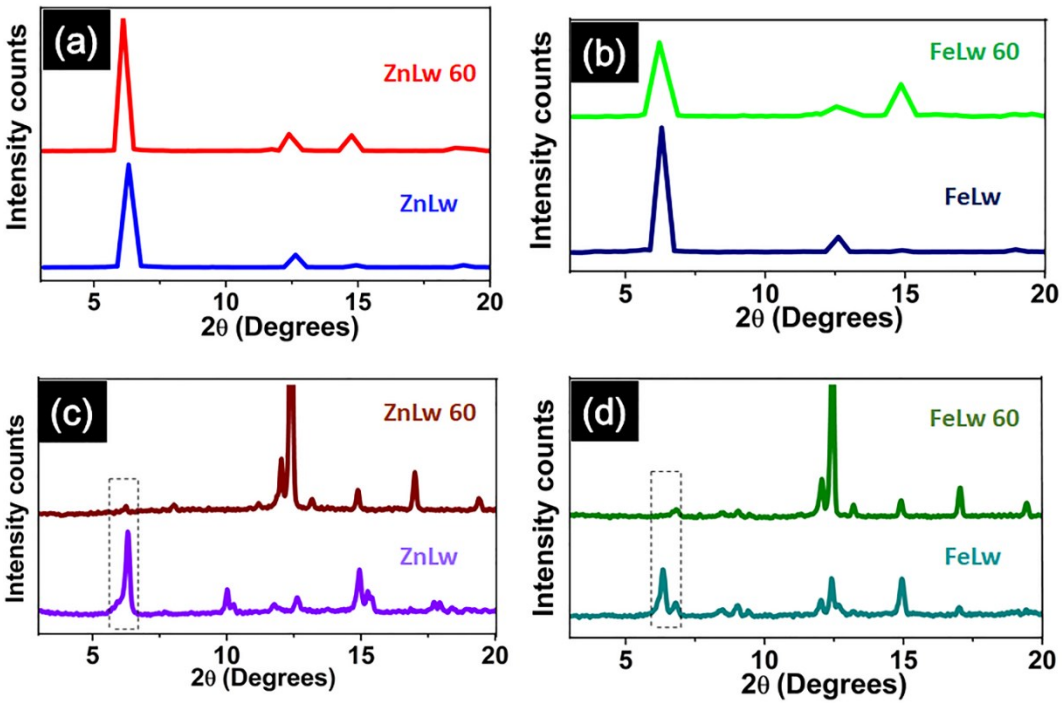

Fig. S1 Evaluation of prolonged structural stability of (c) ZnLw, ZnLw 60; (d) FeLw, FeLw 60 and their comparison with previous XRD patterns (a) and (b) respectively.

MOFs	Surface area ($m^2 g^{-1}$)	Mean pore size (nm)	Mean pore volume ($cm^3 g^{-1}$)
ZnLw	8.8	9.11	0.020
ZnLw 60	5.1	9.48	0.012
FeLw	17.9	10.04	0.045
FeLw 60	21.4	10.79	0.058

Table S1 The surface area, mean pore size, and pore volumes of MOFs calculated by BET analysis.

Sample	Onset degradation temperature (°C)	Residual weight at 700 °C (%)
Lw	150	30
ZnLw	370	66
ZnLw 60	372	73
FeLw	368	59
FeLw 60	326	65

Table S2 Onset degradation temperature and residual weight at 700 °C for Lw and Zn/FeLw MOFs, obtained from thermogravimetric analysis in N_2 atmosphere.

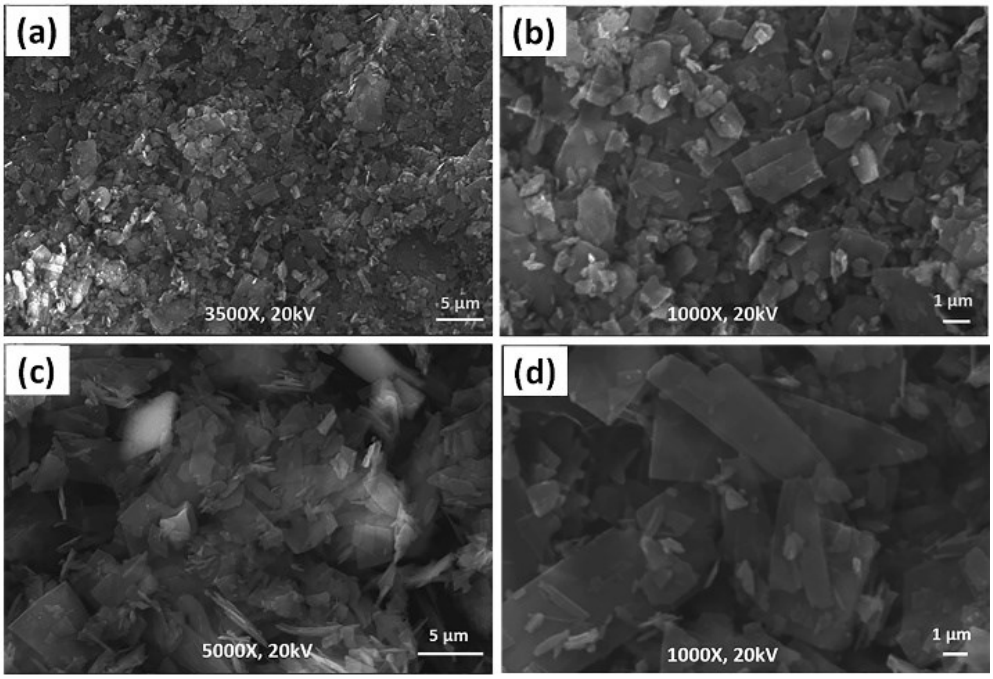

Fig. S2 SEM images of (a-b) ZnLw and (c-d) FeLw at different magnifications.

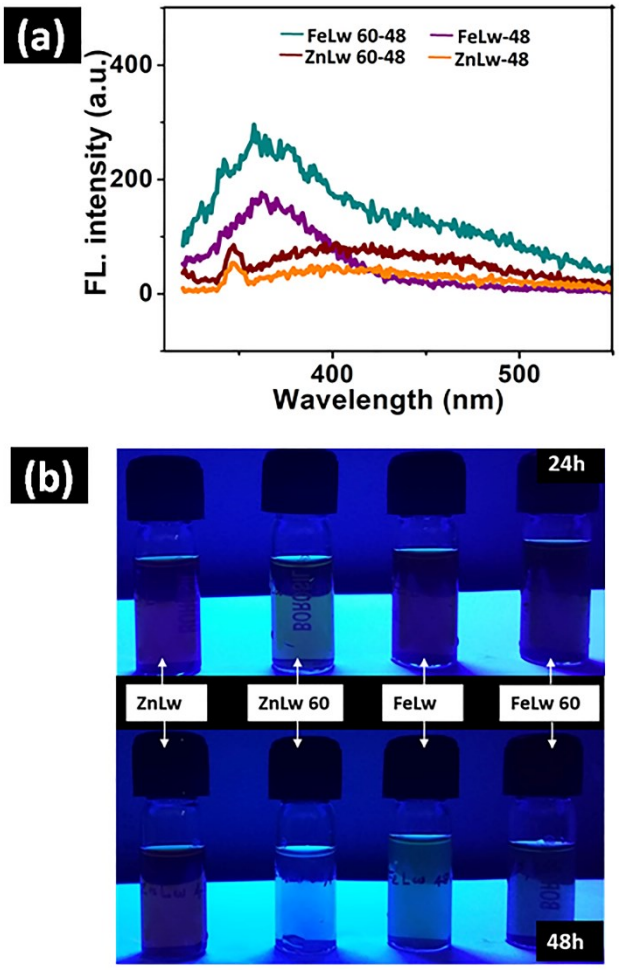

Fig. S3 (a) Emission spectra of ZnLw-48, ZnLw 60-48, FeLw-48, FeLw 60-48 and (b) photographic images of samples synthesized at 24 h and 48 h under UV light.

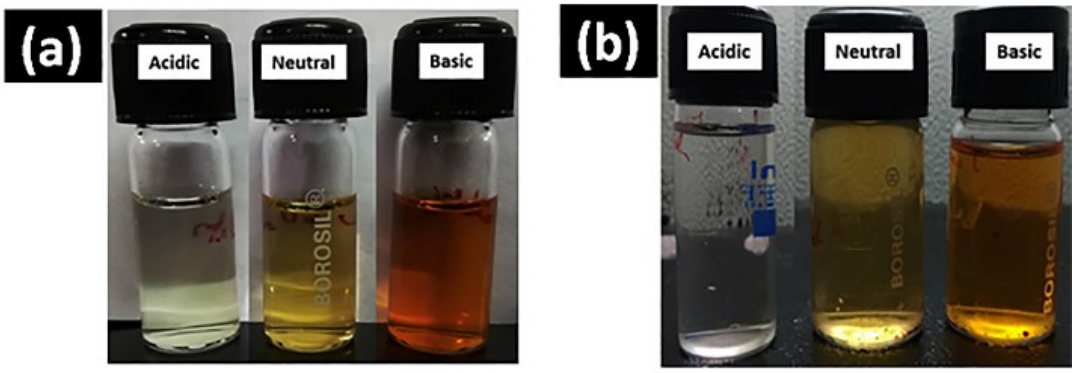

Fig. S4 pH dependent color change of (a) ZnLw and (b) FeLw MOFs.

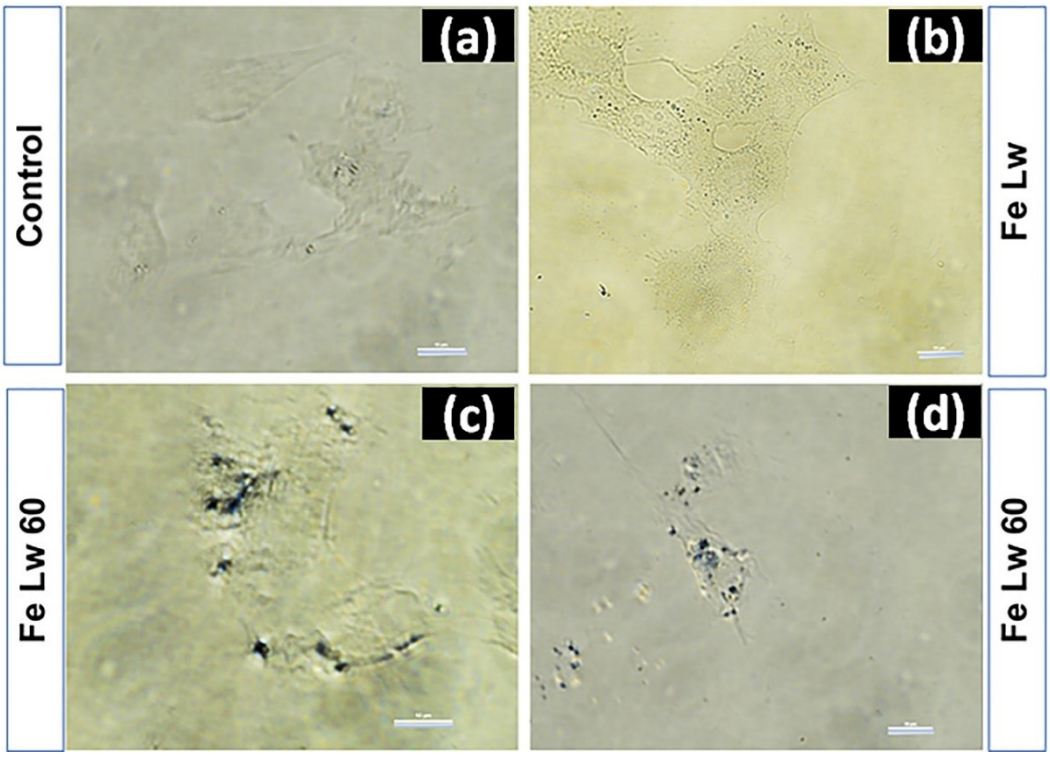

Fig. S5 Prussian blue staining images HOS cells incubated with 20 µg mL^{-1} of (b)FeLw, (c&d) FeLw 60 and (a) Control cells **(Scale bar: 10µm).**