

Table S1: The FTIR peak assessment of FeMOF, PdNR and FeMOF@PdNR.

Material	Peaks (cm⁻¹)	Interpretation
FeMOF	3658	Presence of –OH groups on FeMOF surface [5].
	2977, 2888	Due to -C-H symmetrical stretching vibrations [6].
	630	Related to Fe-O bond vibration [7].
	824	Corresponds to stretching vibrations of bound hydrogen [8].
	1382	Attributed to C-O stretching of TPA carbonate ions [6].
	1536	Assigned to stretching vibrations for carbonyl groups [9].
	1661	Mark of the unsaturated conjugated double bond of quinones [6].
PdNRs	2888, 2977	Presence of –CH ₂ – groups of PVP [10].
	608	Attributed to Pd–O stretching [11].
	830	Stretching vibrations of bound hydrogen [8].
	1146, 1770	Indicates C-O stretching from PVP [12].
FeMOF@PdNR	2848 – 2977	Combined features, intensified alkyl C–H stretching [13].
	1046	Represent the C–H in-plane bending [14].
	1192, 1729	Indicates C-O stretching from organic linkers [12, 15].