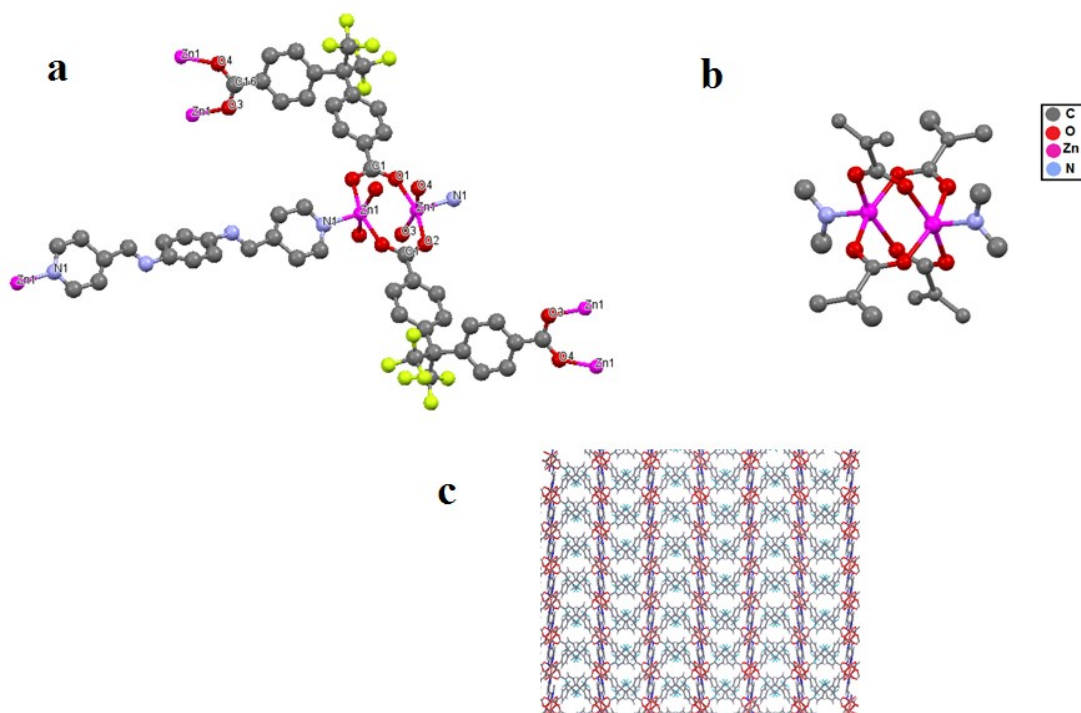


## Supporting Information

### Ultrasonic-assisted Fabrication of F-MOFs: Morphology and Types of Pillars-Dependent Sensing Performance to Phenolic NACs Detection

**Table S1.** Experimental details for synthesis of TMU-44 and TMU-45 by sonochemical method.

<b>Compound</b>	<b>Concentration [ppda]/ [4-bpdh]/[Co(OAc)<sub>2</sub>] (M)</b>	<b>Time (min)</b>	<b>Power (W)</b>	<b>Morphology</b>
<b>TMU-44</b>	[0.005]/[0.005]/[0.005]	15	12	Spindle shapes
	[0.005]/[0.005]/[0.005]	60	12	Spindle shapes
	[0.01]/[0.01]/[0.01]	15	12	Spindle shapes
	[0.01]/[0.01]/[0.01]	60	12	Spindle shapes
	[0.05]/[0.05]/[0.05]	15	12	Spindle shapes
	[0.05]/[0.05]/[0.05]	60	12	Spindle shapes
<b>TMU-45</b>			12	
	[0.005]/[0.005]/[0.005]	15	12	Spherical shape
	[0.005]/[0.005]/[0.005]	60	12	Spherical shape
	[0.01]/[0.01]/[0.01]	15	12	Spherical shape
	[0.01]/[0.01]/[0.01]	60	12	Spherical shape
	[0.05]/[0.05]/[0.05]	15	12	Spherical shape
[0.05]/[0.05]/[0.05]	60	12	Spherical shape	



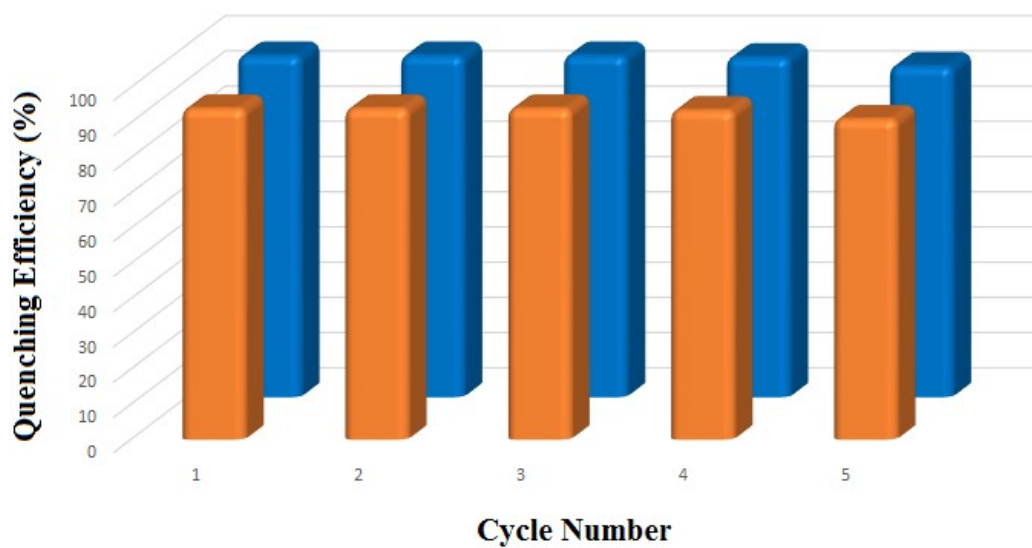
**Fig S1.** (a) Ortep view of the asymmetric unit of TMU-44 showing coordination environment about Zn1. Hydrogen atoms are omitted for clarity, (b) The coordination environment of Zn in TMU-44, and 2D helical Zn(II) hfipbb<sup>2-</sup> sheet (c).

**Table S2.** Crystal data and structural refinement for TMU-44.

Formula	C <sub>26</sub> H <sub>14</sub> F <sub>6</sub> N <sub>2</sub> O <sub>4</sub> Zn
fw	597.76
$\lambda/\text{\AA}$	0.71073
$T/\text{K}$	100 (2)
crystal system	monoclinic
space group	<i>P2/c</i>
$a/\text{\AA}$	15.785(3)
$b/\text{\AA}$	7.8990(16)
$c/\text{\AA}$	22.854(5)
$\alpha/^\circ$	90
$\beta/^\circ$	100.66(3)
$\gamma/^\circ$	90
$V/\text{\AA}^3$	2800.4(10)
$D_{\text{calc}}/\text{Mg}\cdot\text{m}^{-3}$	1.418
$Z$	4
$\mu$ (mm <sup>-1</sup> )	0.949
$F(000)$	1200
$R$ (int)	0.1504
GOOF	1.923
$R_1^a(I > 2\sigma(I))$	0.2496
$wR_2^b(I > 2\sigma(I))$	0.5419
CCDC No.	1840885

**Table S3.** Selected bond lengths (Å) and angles (°) for TMU-44.

Zn1-Zn1	2.957(3)	O4-Zn1-N1	97.1(5)	O4-Zn1-O3	159.8(5)
Zn1-O1	2.024(12)	O4-Zn1-O2	89.1(5)	N1-Zn1-O3	103.0(5)
Zn1-O2	2.014(11)	N1-Zn1-O2	103.6(5)	O2-Zn1-O3	88.4(5)
Zn1-O3	2.043(11)	O4-Zn1-O1	88.1(5)	O1-Zn1-O3	87.3(5)
Zn1-O4	2.003(13)	N1-Zn1-O1	96.5(5)	C1-O2-Zn1	118.0(11)
Zn1-N1	2.003(11)	O2-Zn1-O1	159.9(5)	C1-O1-Zn1	135.4(11)



**Figure S2.** Comparison graph of reusability of the TMU-44 and TMU-45 synthesized by ultrasonic as sensors after 5 cycles.