

Supporting Information

**Unique and outstanding catalytic behavior of a novel MOF@COF composite
as an emerging and powerful catalyst in the preparation of
2,3-dihydroquinazolin-4(1H)-one derivatives**

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3-(4-bromophenyl)-2-(4-(methylthio) phenyl)-2,3-dihydroquinazolin-4(1H)-one (4m).

White solid; m.p. 246-248°C. IR spectrum ν , cm^{-1} : 3322, 1606, 1674, 1521, 1422, 1383, 1282, 1018, 1025; ^1H NMR (250 MHz, $\text{DMSO}-d_6$): 2.75 (s, 3H, CH_3), 4.65 (s, 1H, CH), 6.23 (s, 1 H, NH), 6.76-7.04 (m, 4H, ArH), 7.28-7.33 (m, 4H, ArH), 7.74-7.78 (m, 4H, ArH); ^{13}C NMR (62.9 MHz, $\text{DMSO}-d_6$) δ : 27.39, 33.43, 68.62, 76.82, 87.26, 87.26, 112.03, 123.52, 124.34, 131.34, 132.43, 135.26, 138.56, 145.44, 147.33, 148.69, 153.47, 162.24, 164.38, 172.21, 181.42, 186.21; Anal. Calcd. For: $\text{C}_{21}\text{H}_{17}\text{BrN}_2\text{OS}$: C 59.30, H 4.03, N 6.59. Found: C 58.21, H 4.01, N 6.53; MS (EI) (m/z): 424.03 (M^+).

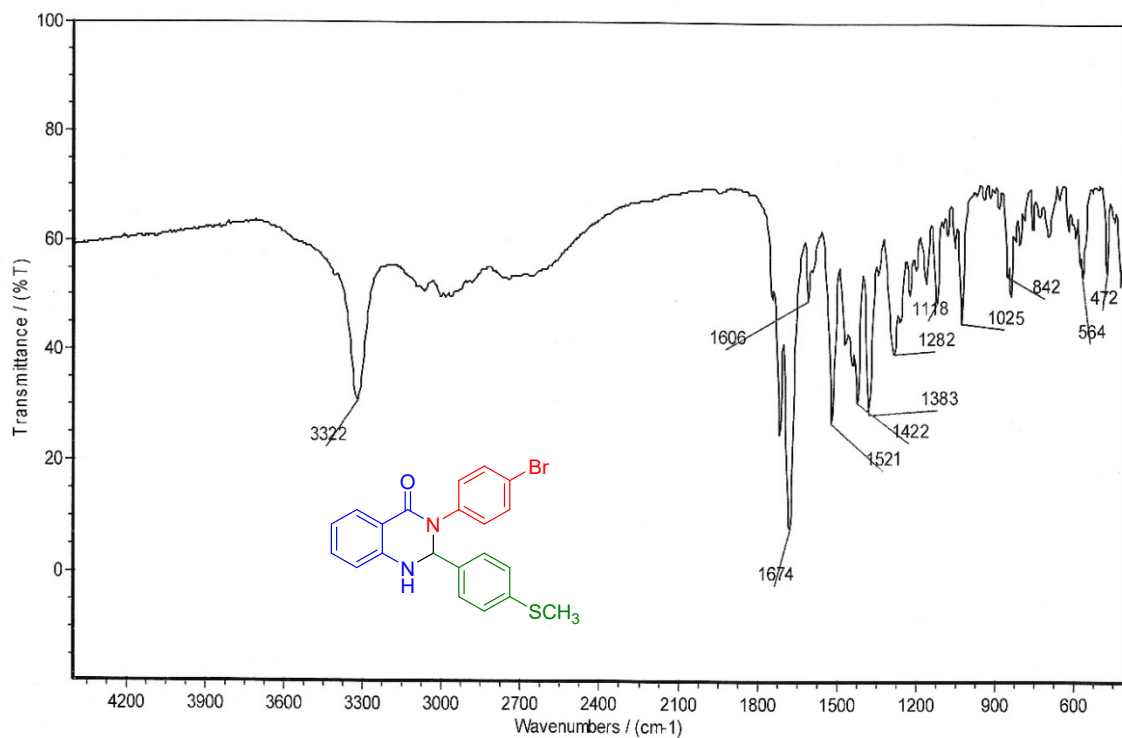


Fig. S1. FT-IR spectrum of 4m.

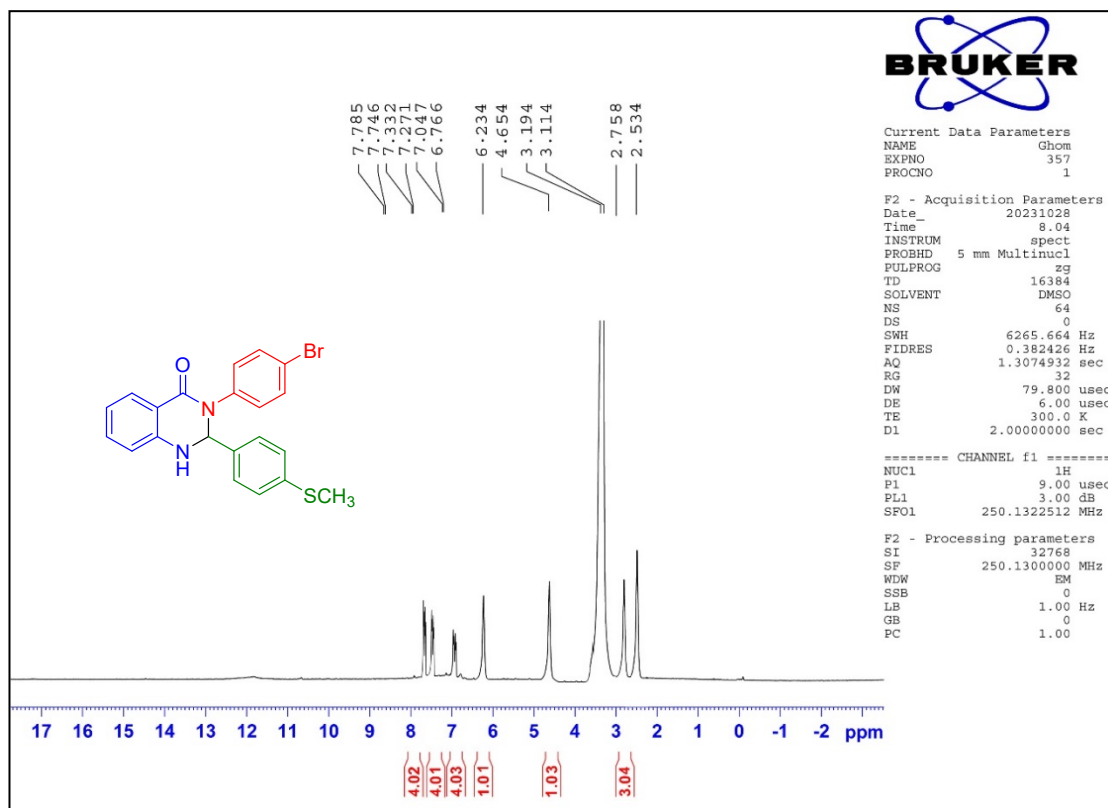


Fig. S2. ¹H-NMR spectrum of 4m.

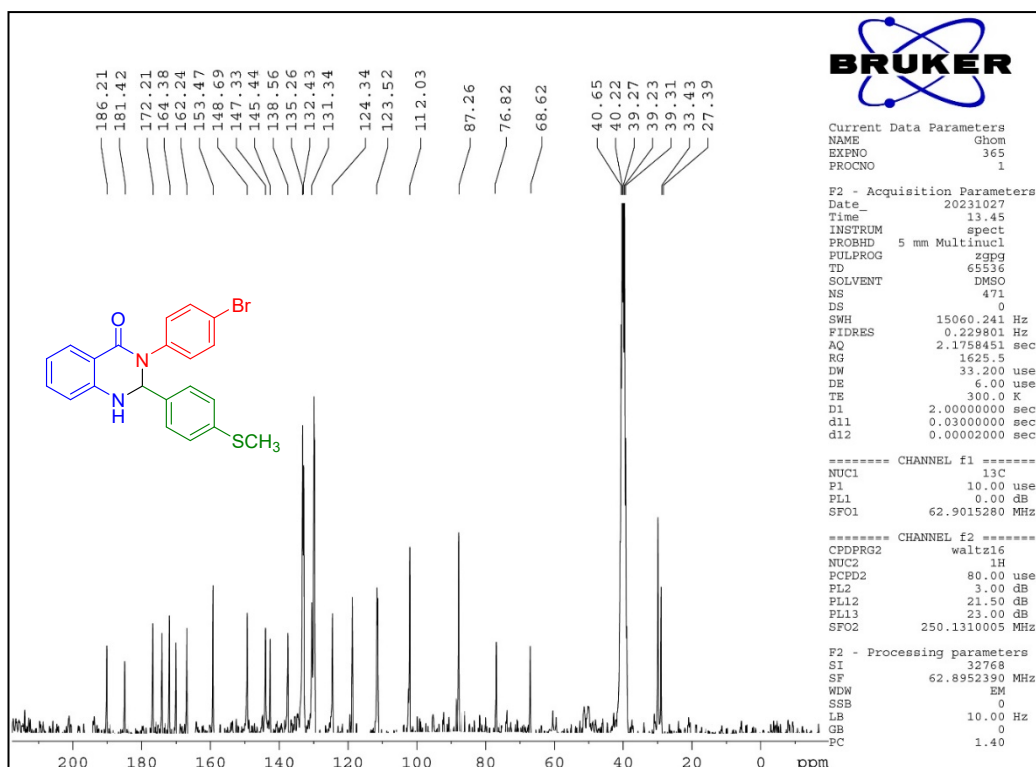


Fig. S3. ^{13}C -NMR spectrum of 4m.

2-(4-(methylthio)phenyl)-2,3-dihydroquinazolin-4(1H)-one (6g).

White solid; m.p. 235-237°C. IR spectrum ν , cm^{-1} : 3364, 3171, 1674, 1591, 1500, 1475, 1375, 1203; ^1H NMR (250 MHz, $\text{DMSO-}d_6$): 2.37 (s, 3H, CH_3), 4.21 (s, 1H, CH), 6.12 (s, 1 H, NH), 7.26-7.44 (d, 2H, $J = 8.2$ Hz, ArH), 7.53-7.64 (d, 2H, $J = 8.3$ Hz, ArH), 7.85-7.98 (m, 4H, ArH) 9.32 (s, 1 H, NH); ^{13}C NMR (62.9 MHz, $\text{DMSO-}d_6$) δ : 28.23, 30.77, 76.61, 87.62, 93.24, 116.46, 117.41, 123.54, 127.61, 136.51, 141.63, 143.01, 144.32, 159.37; Anal. Calcd. For: $\text{C}_{15}\text{H}_{14}\text{N}_2\text{OS}$: C 66.64, H 5.22, N 10.36. Found: C 66.61, H 5.26, N 10.32; MS (EI) (m/z): 270.08 (M^+).

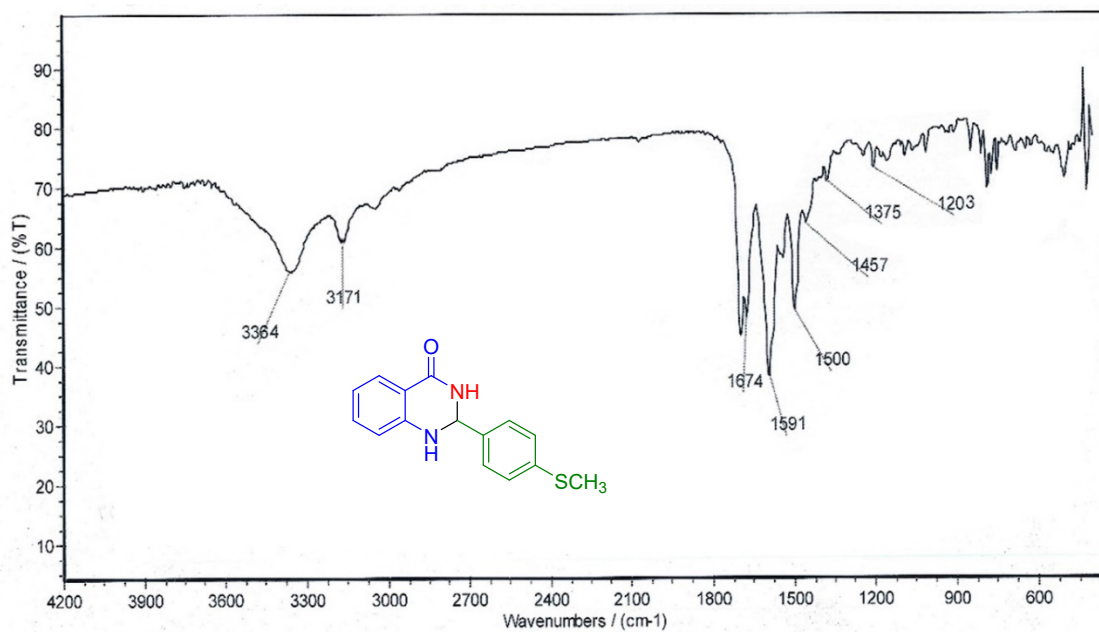


Fig. S4. FT-IR spectrum of 6g.

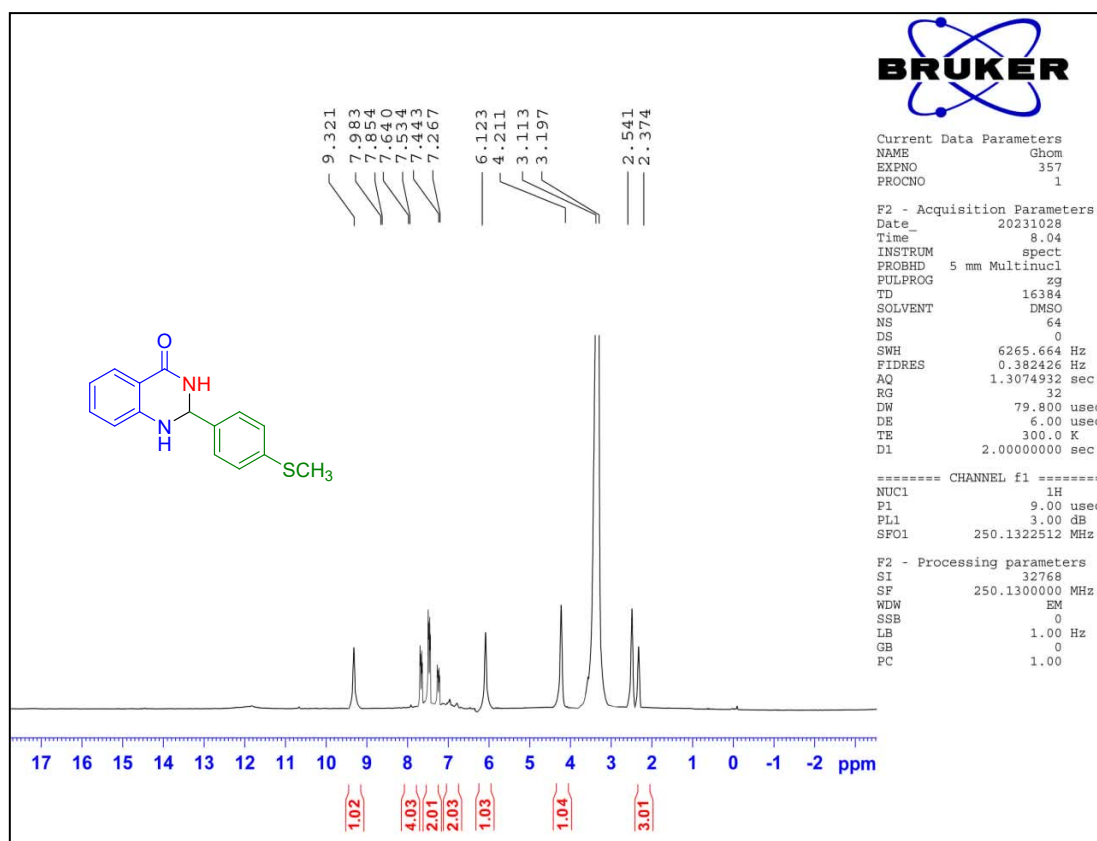


Fig. S5. ¹H-NMR spectrum of 6g.

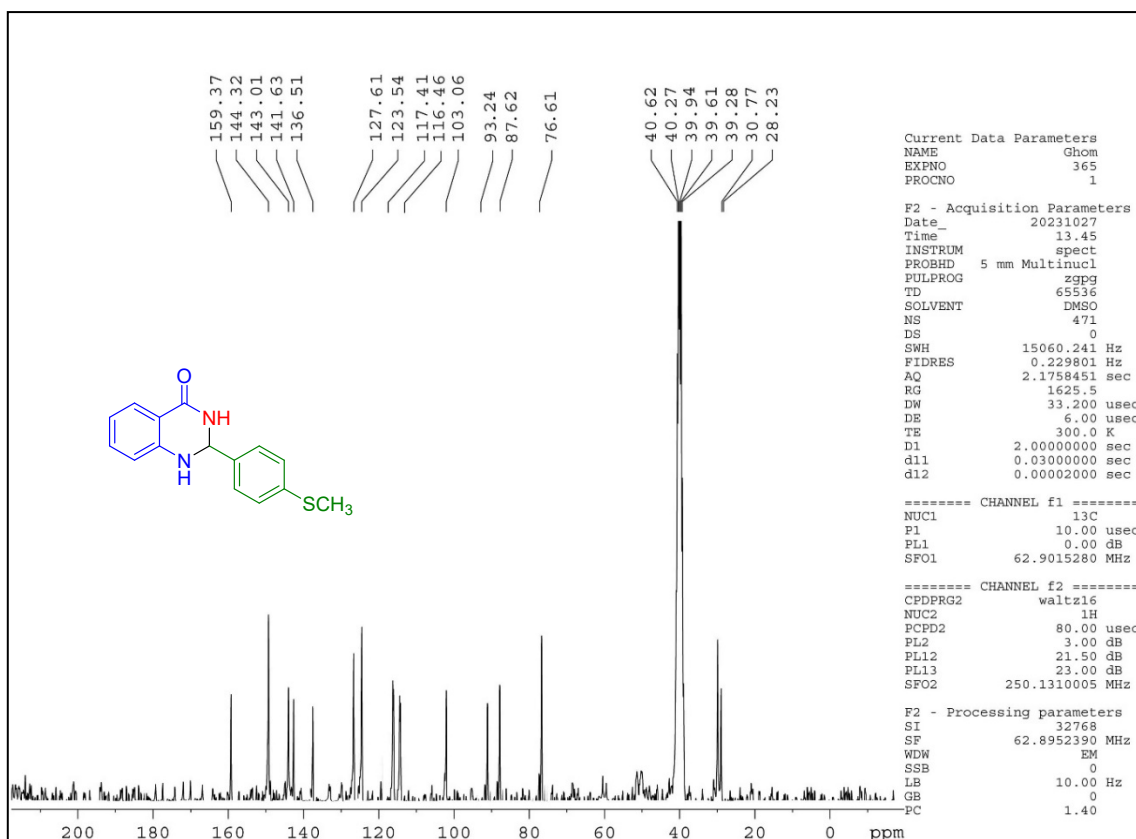


Fig. S6. ^{13}C -NMR spectrum of 6g.

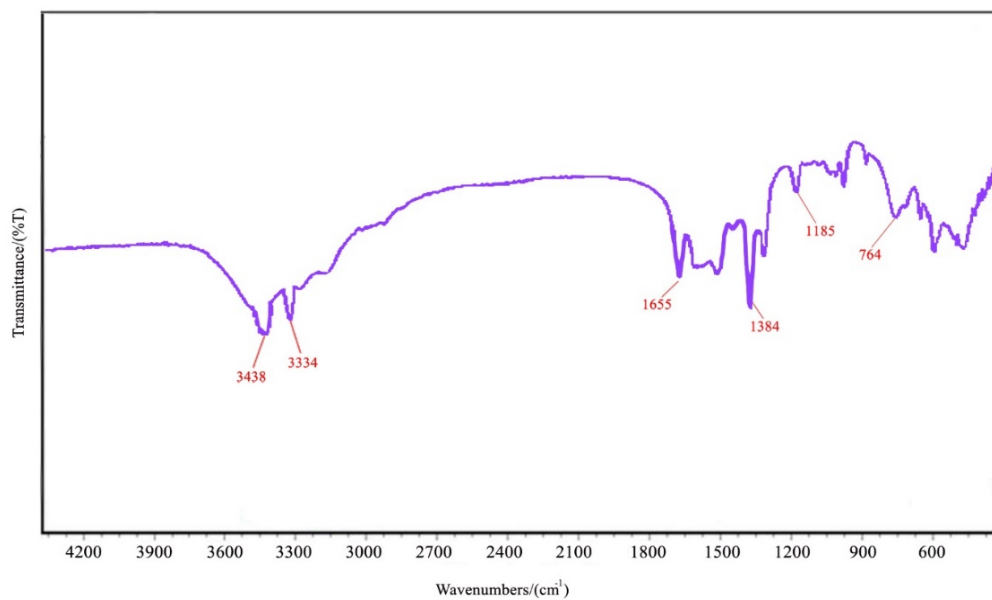


Fig. S7. FT-IR spectra of UiO-66-NH₂-MOF

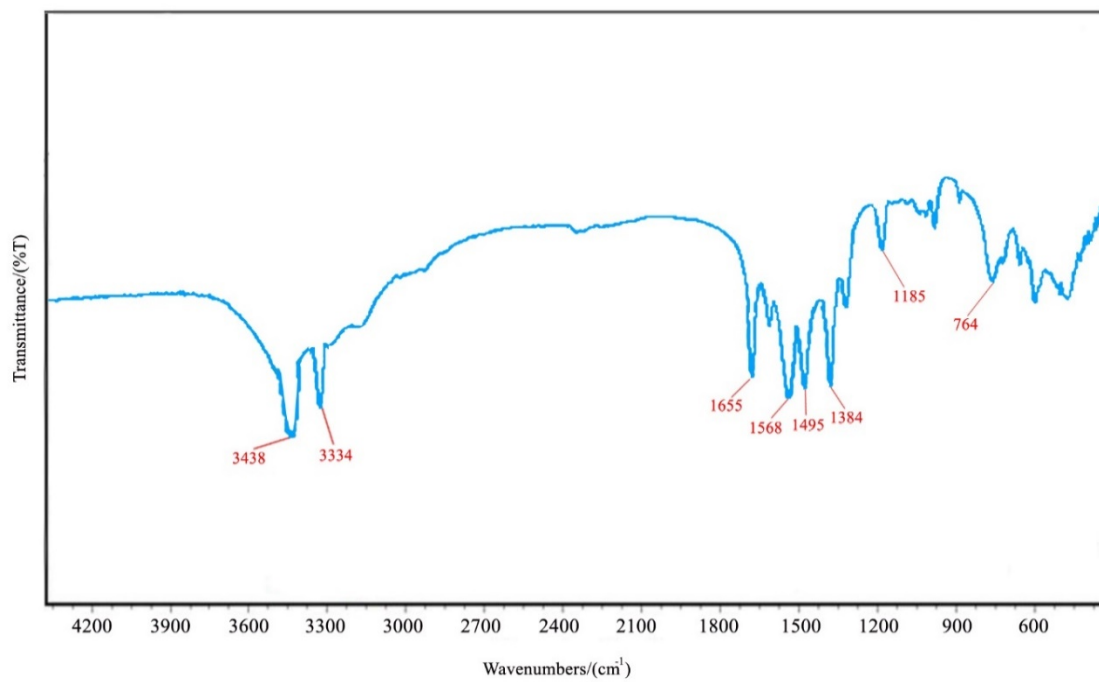


Fig. S8. FT-IR UiO-66-NH₂-MOF@COF.

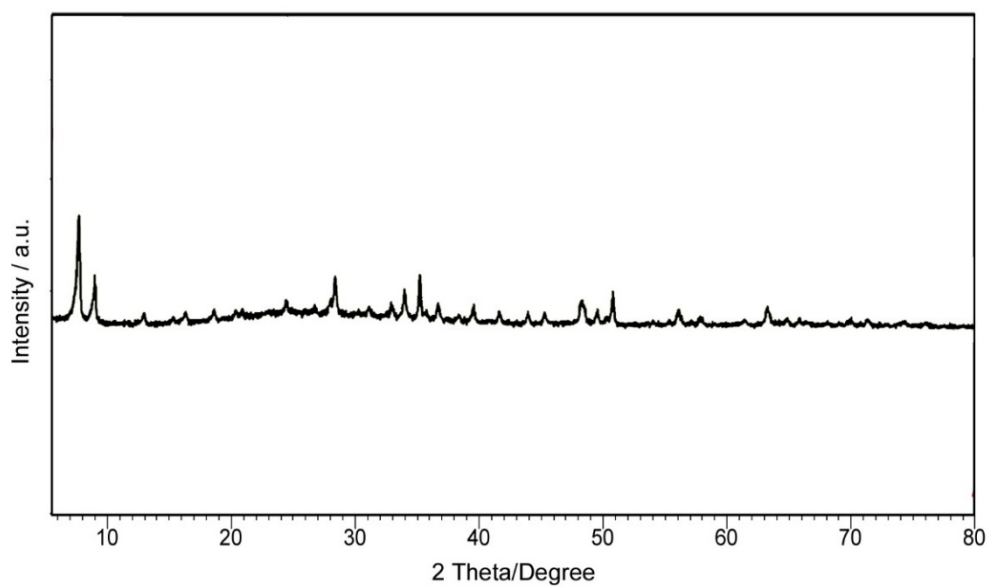


Fig. S9. XRD pattern of simulated UiO-66-NH₂-MOF.

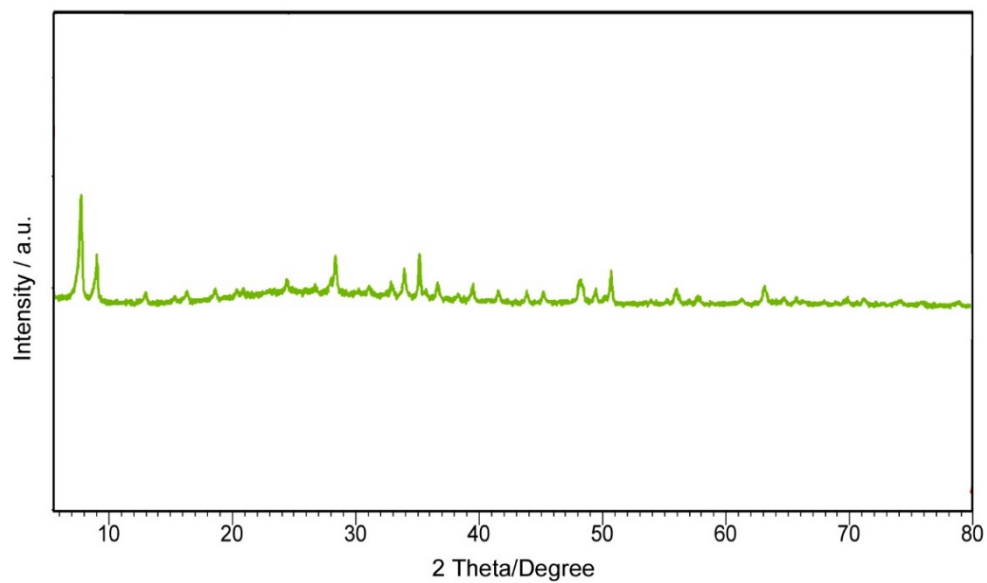


Fig. S10. XRD pattern of UiO-66-NH₂-MOF.

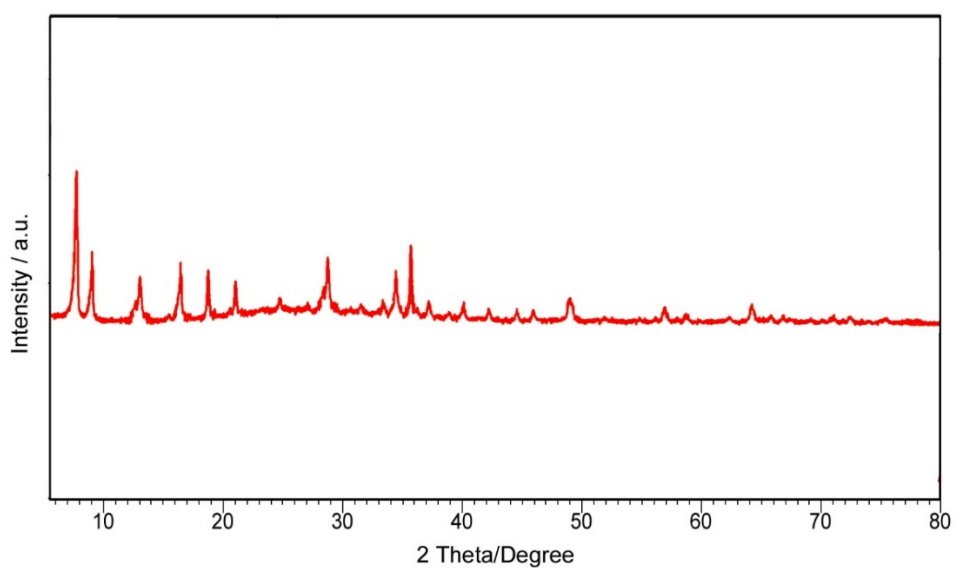


Fig. S11. XRD pattern of UiO-66-NH₂-MOF@COF.