

## **Picolinoyl functionalized MOF ligands for an air-promoted secondary alcohol oxidation with CuBr**

Xin Du,<sup>a</sup> Yi Luan,<sup>\*,a</sup> Fengxia Yang,<sup>a</sup> Daniele Ramella,<sup>b</sup> Xin Shu<sup>\*,c</sup>

<sup>a</sup> School of Materials Science and Engineering, University of Science and Technology Beijing, 30 Xueyuan Road, Haidian District, Beijing 100083, P. R. China, E-mail: yiluan@ustb.edu.cn, duxin@ustb.edu.cn

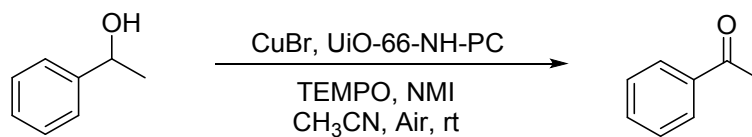
<sup>b</sup> Temple University-Beury Hall, 1901, N. 13th Street, Philadelphia PA 19122, United States

<sup>c</sup> College of Science, Beijing University of Chemical Technology, Beijing 100029, P.R. China

**Supporting Information**

**General Information.** All  $^1\text{H}$  NMR, and  $^{13}\text{C}$  NMR spectra were recorded using Varian Unity Plus 400 (93.94 kG,  $^1\text{H}$  400 MHz) spectrometer at ambient temperature in  $\text{CDCl}_3$ . Chemical shifts are reported in parts per million as follows: chemical shift, multiplicity (s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, br = broad), coupling constant, and integration. The structure and phase of the samples were evaluated by X-ray powder diffraction (XRD, Rigaku DMAX-RB 12 KW) with  $\text{Cu K}\alpha$  radiation ( $\lambda=0.15406$  nm). The morphology of the as-obtained product was characterized by scanning electron microscopy (SEM, ZEISS SUPRA55). Transmission electron microscopy (TEM) and high-resolution TEM (HRTEM) were conducted on a TEI Tecnai F20. The samples for the SEM, TEM and HRTEM measurements were dispersed in ethanol and sonicated for a few minutes and supported onto the silicon slice and the holey carbon film on a Cu grid, respectively. The specific surface areas were calculated by the Brunauer–Emmett–Teller (BET) method. The pore size distributions were derived from the adsorption branches of isotherms by using the Barrett–Joyner–Halenda (BJH) model. Infrared spectra were recorded on a NICOLET 6700 infrared spectrophotometer. Analytical thin layer chromatography was performed using EMD 0.25 mm silica gel 60-F plates. Flash column chromatography was performed on Sorbent Technologies 60 Å silica gel.

## General procedure for the aerobic oxidation of alcohols



In a typical procedure, 1.0 mmol of 1-phenylethanol-1-ol, 0.05 mmol of TEMPO, 0.1 mmol of NMI were mixed in the presence of 0.05 mmol of UiO-66-NH-PC ligand. were added in a 10 mL round-bottom flask. Without sealing the flask, the solution was stirred at room temperature (23 °C) for the desired time until the reaction was completed. After the catalytic reaction, the solid was filtered. The filtrate was examined by GC-MS using *n*-Dodecane as the internal standard.

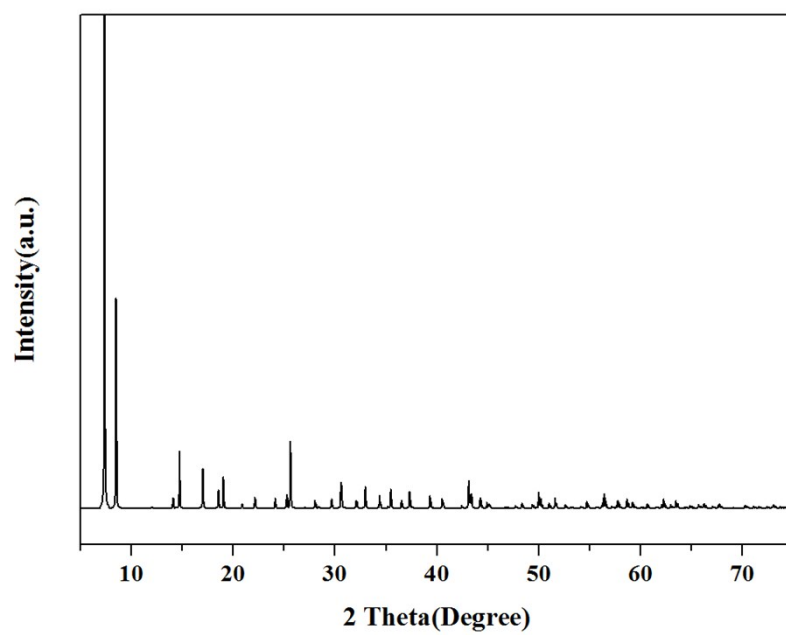


Fig. S1 Simulated PXRD patterns of UiO-66.

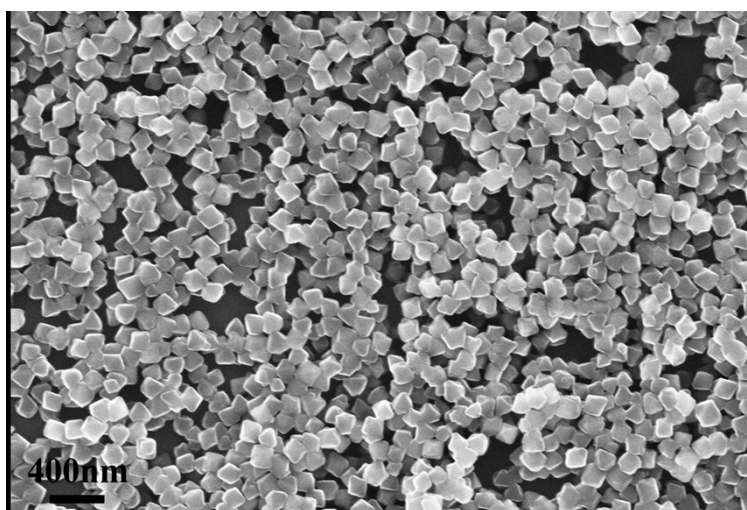
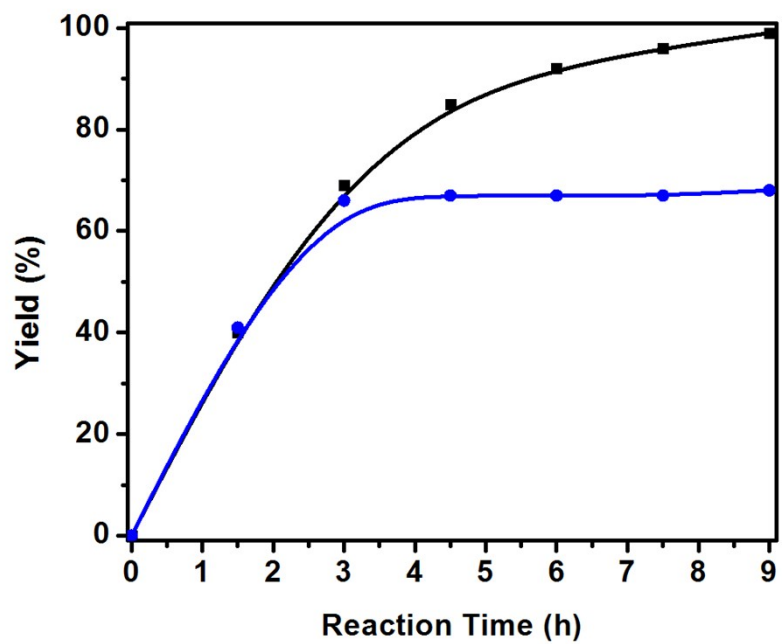
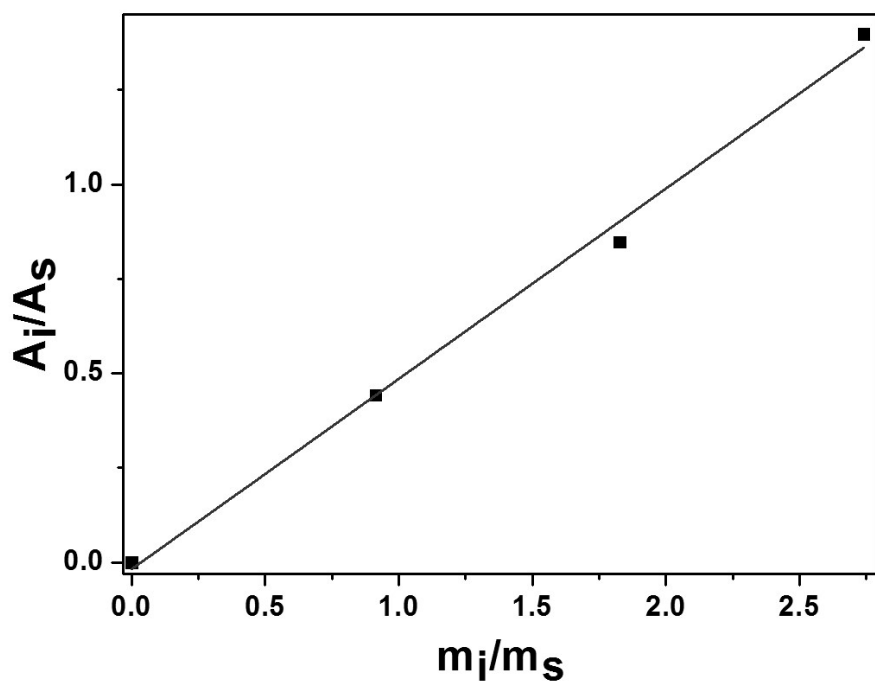


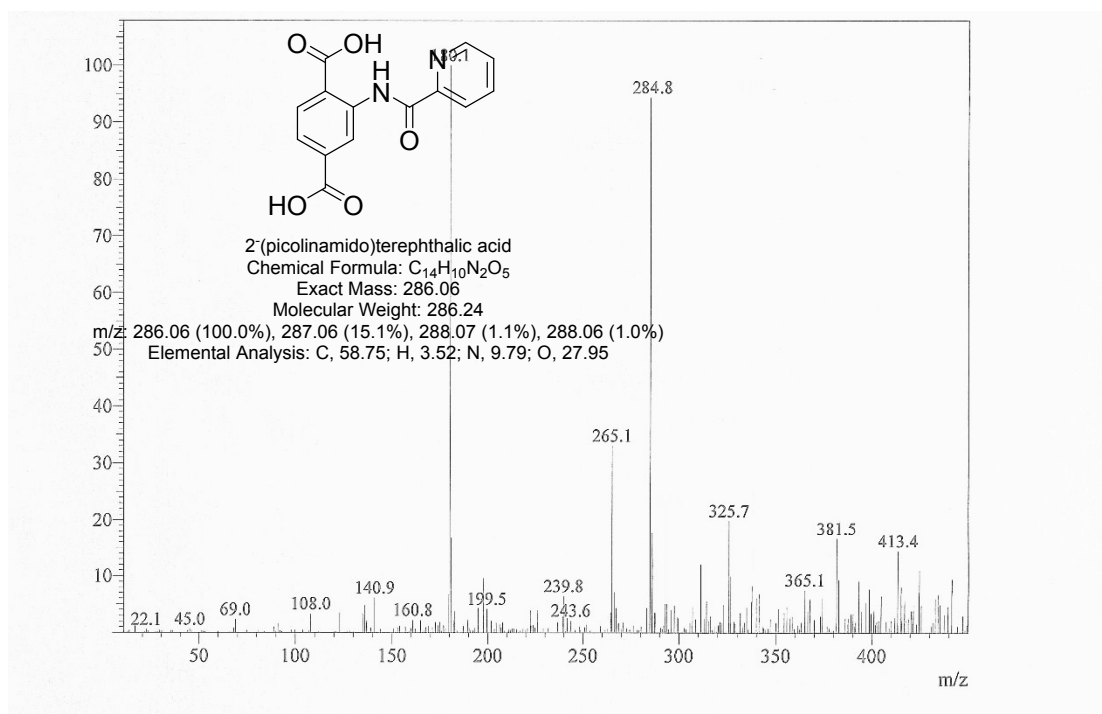
Fig S2. SEM image of recycled UiO-66-NH-PC.



**Fig. S3** Conversion *versus* time in the aerobic oxidation of alcohol catalyzed by CuBr/UiO-66-NH-PC. a) reaction without filtration, b) solid ligand was filtered at 3 h.



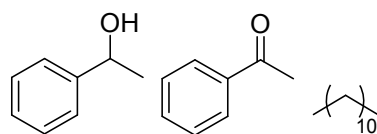
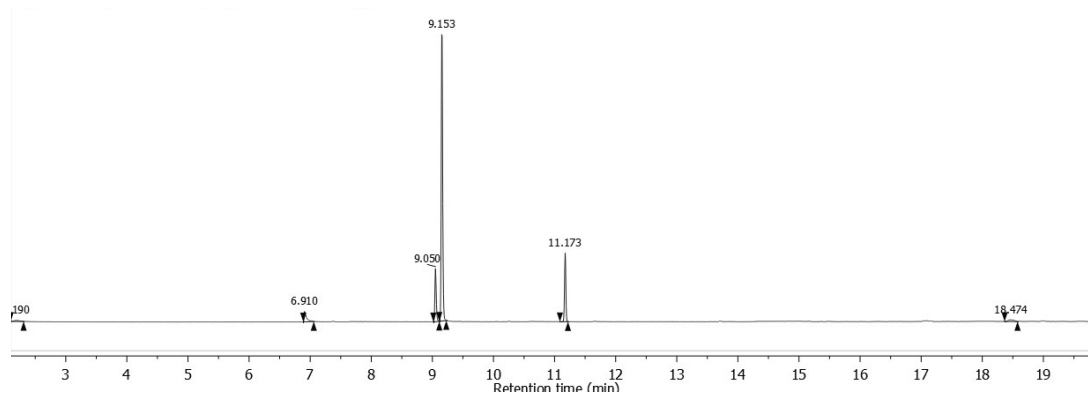
**Fig. S4** Linear fit calibration of standard data to analyze unknown concentration of acetophenone



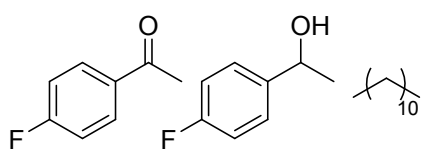
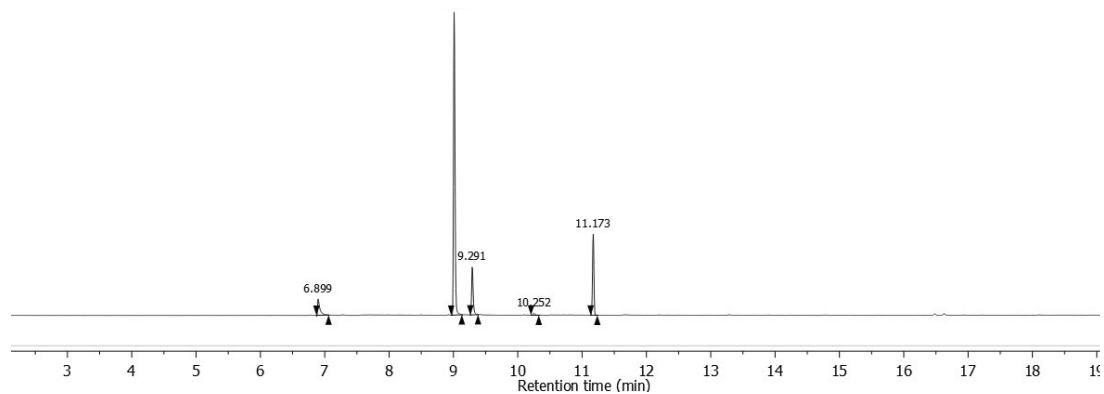
**Fig. S5** ESI-MS (negative mode) of UiO-66-NH-PC.

## GC-MS result of aerobic oxidation reaction.

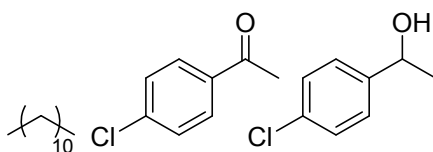
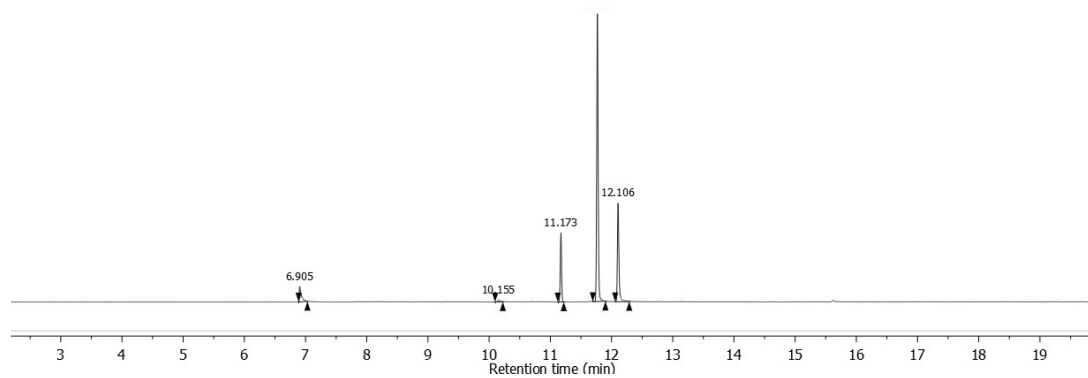
Table 1, entry 5.



## Compound 2b

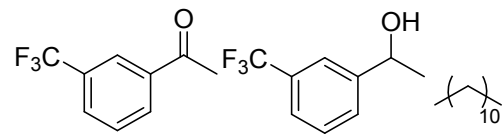
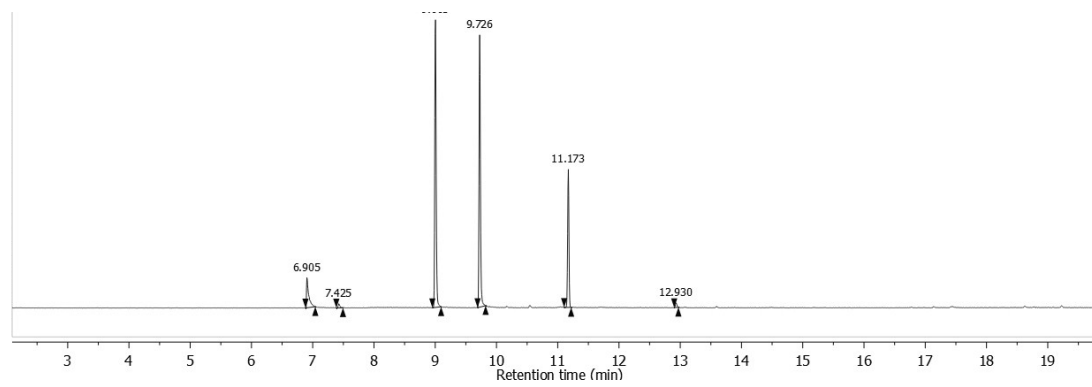


## Compound 2c

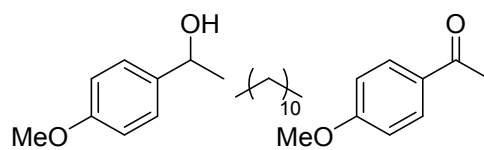
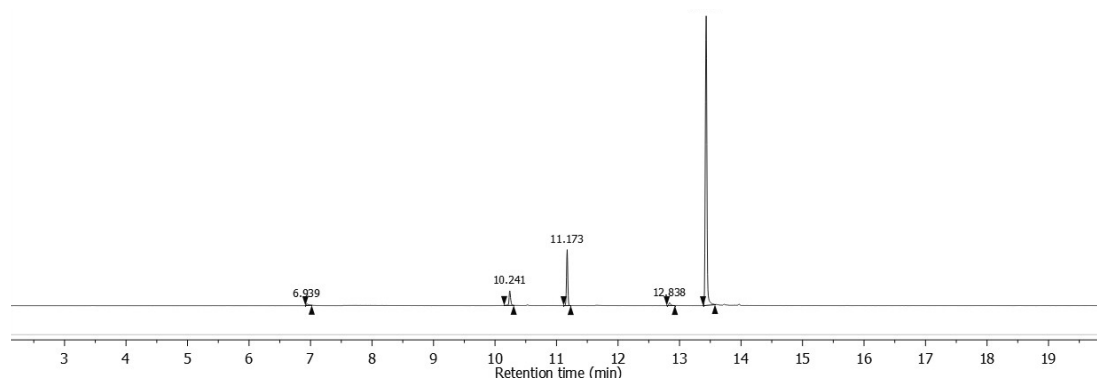




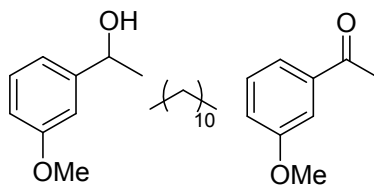
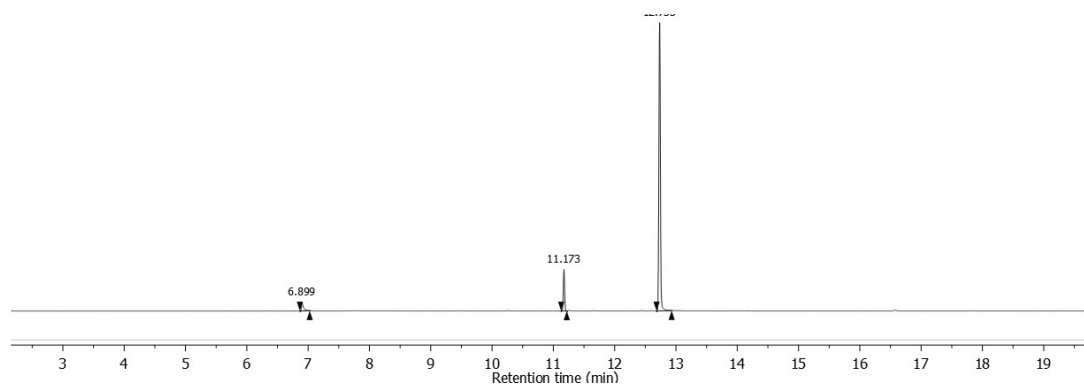
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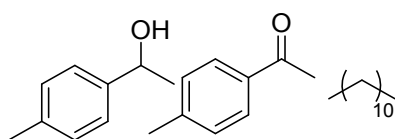
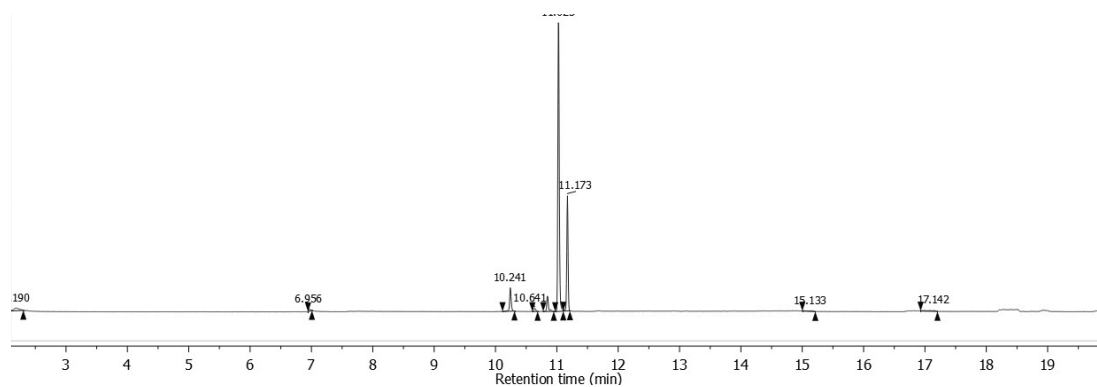
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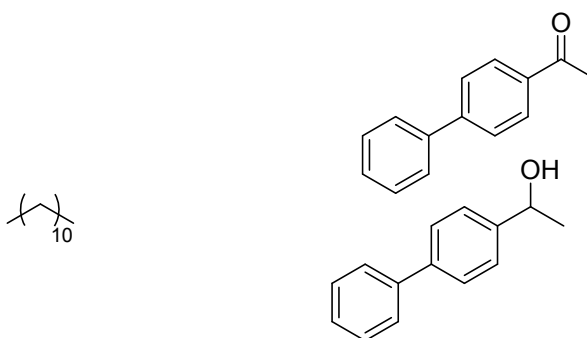
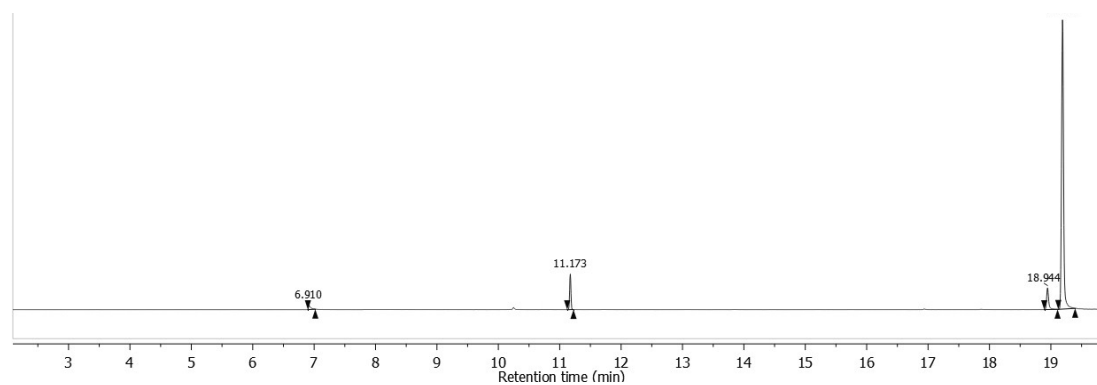
## Compound 2f



## Compound 2g



## Compound 2h



# Compound 2i

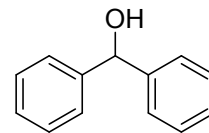
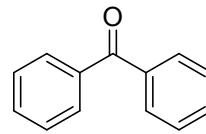
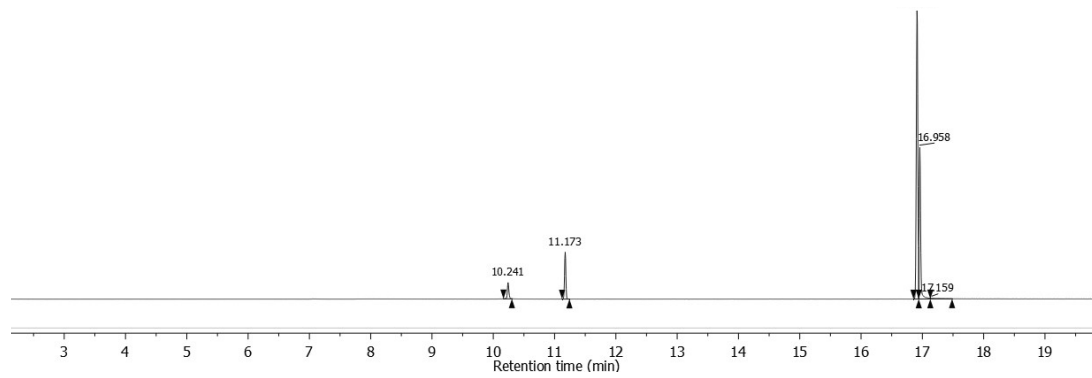


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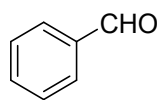
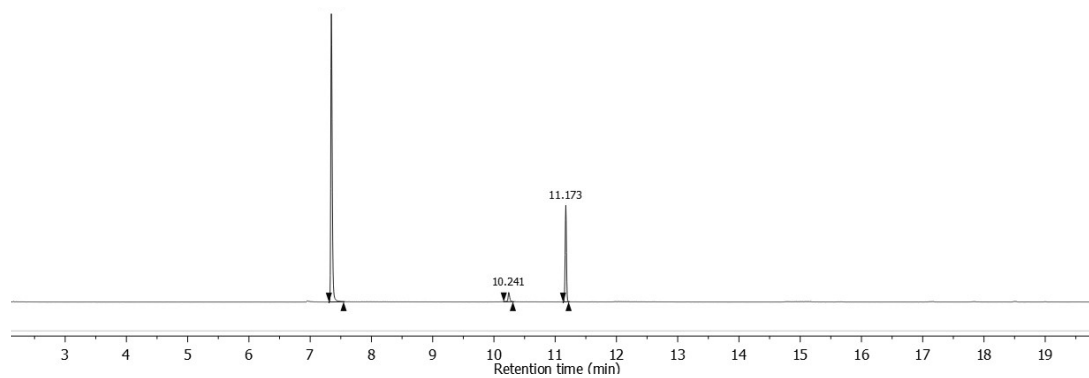


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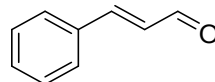
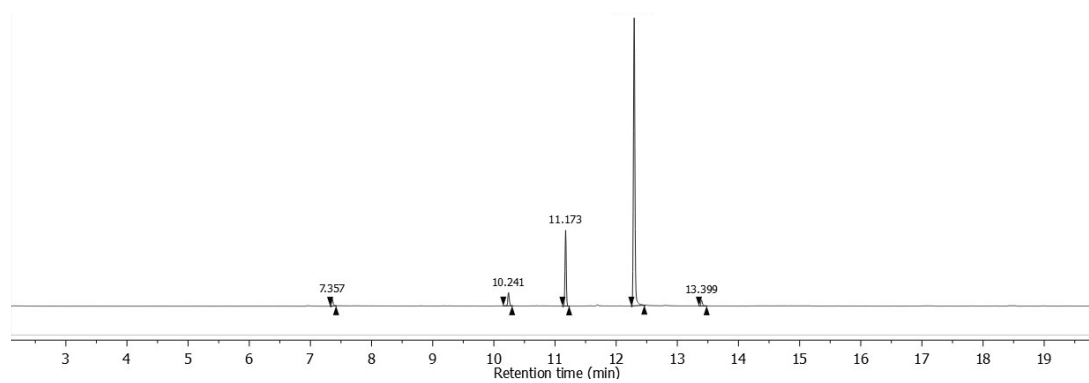


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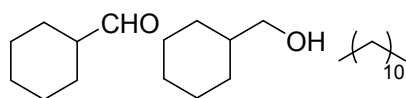
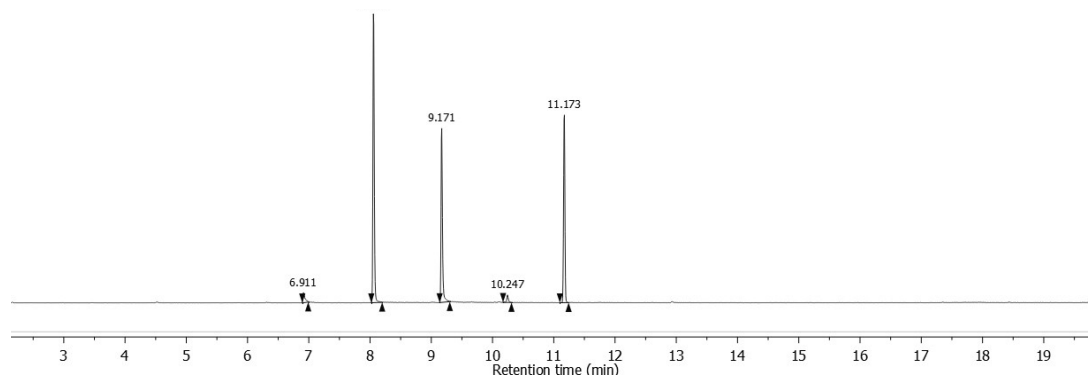


Table 2, entry 4.

