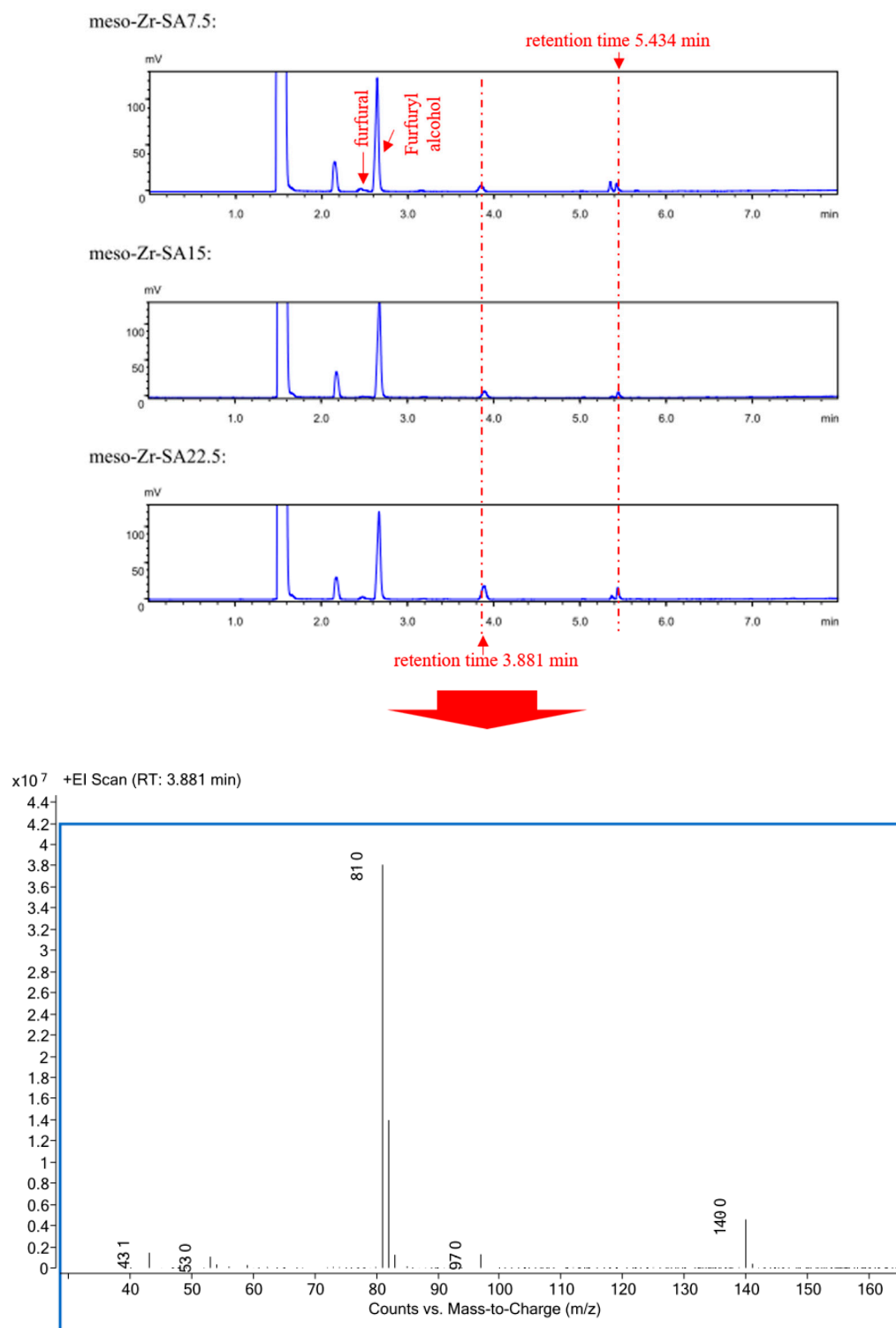
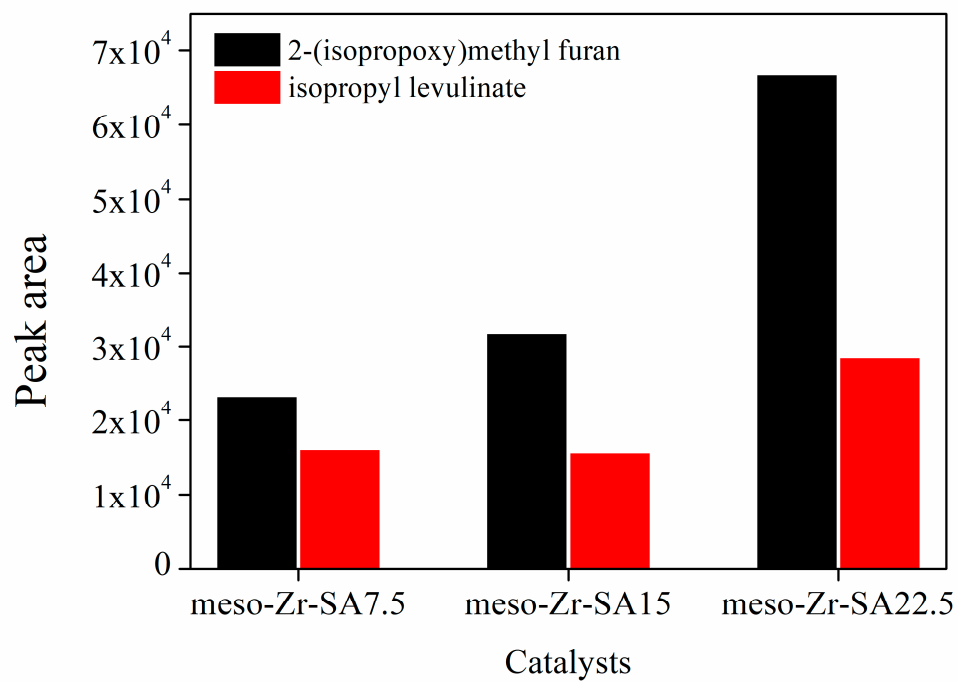


**Figure S1.** Nitrogen adsorption-desorption isotherm of nano-ZrO<sub>2</sub>.



**Figure S2.** Gas chromatograms of samples obtained after reaction for 4 h over mesoporous Zr-hybrids along with the mass spectra of byproduct at retention time of 3.881 min. Reaction conditions: 1 mmol furfural, 100 mg catalyst, 110 °C.



**Figure S3.** The peak area of each byproduct after reaction for 4 h over mesoporous Zr-hybrids.

**Table S1.** The contents of acid sites in nano-ZrO<sub>2</sub> basing on pyridine-adsorbed FTIR spectra at desorption temperature of 150 °C.

Sample	BA <sup>a</sup> content (μmol/g)	LA <sup>b</sup> content (μmol/g)	BA+LA (μmol/g)
nano-ZrO <sub>2</sub>	7.0	71.3	78.3

<sup>a</sup> BA stands for Brønsted acid; <sup>b</sup> LA stands for Lewis acid

**Table S2.** MPV reduction of furfural to furfuryl alcohol over meso-Zr-SA15 at 130 and 150 °C

Temperature (°C)	Time (h)	Furfural conversion (%)	Furfuryl alcohol yield (%)	Furfuryl alcohol selectivity (%)
130	1	91.4	85.2	93.2
130	2	97.9	93.3	95.3
130	3	99.3	92.6	93.2
150	1	98.5	92.5	93.9
150	2	99.8	76.4	76.6

**Table S3.** Reusability of meso-Zr-SA15 in MPV reduction of furfural to furfuryl alcohol performed at reaction time of 2 h.

Run	Furfural conversion (%)	Furfuryl alcohol yield (%)	Furfuryl alcohol selectivity (%)
1	92.1	88.2	95.8
2	92.8	88.3	95.1
3	91.9	87.6	95.3
4	91.7	87.5	95.4
5	91.1	86.9	95.3