

## Supporting Information

### Selective Oxidation of Aldehyde by Oxygen over Macroporous

#### Alkaline Resin

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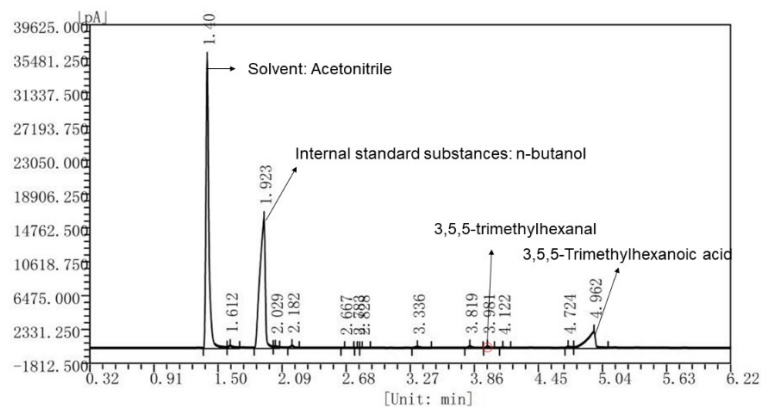


Figure 1: GC chromatogram in optimal state (Reaction conditions: aldehyde 0.04 mol, solvent 0.4 mol, reaction temperature 45°C, catalyst (alkaline resin D201-OH) 0.6 g and oxygen pressure 0.3 MPa, reaction time 40 min.)

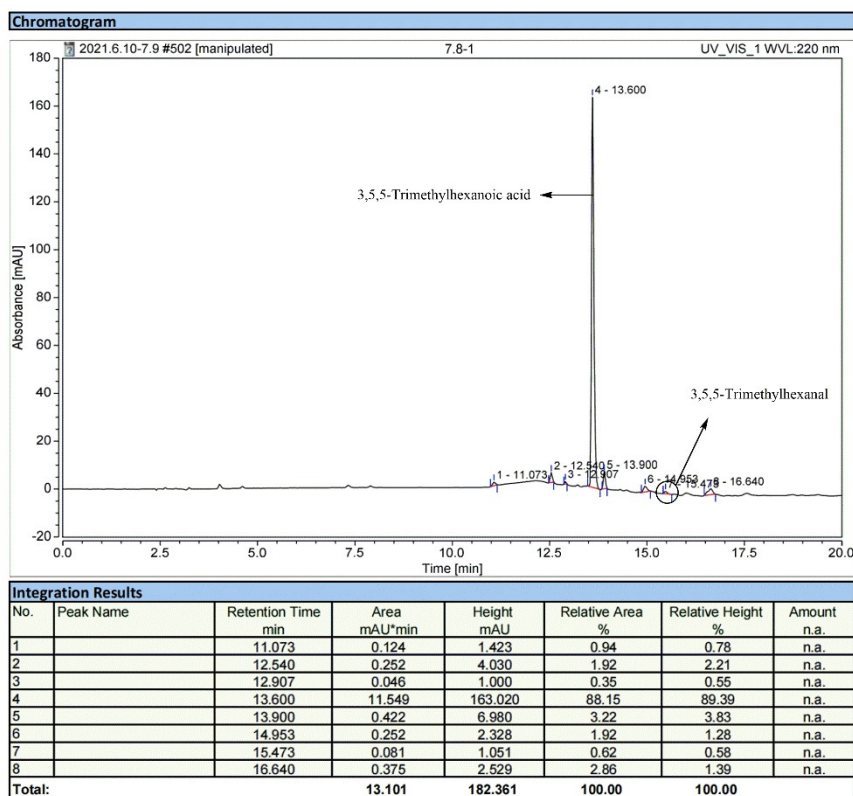


Figure 2: HPLC chromatogram under optimal conditions (Reaction conditions: aldehyde 0.04 mol, solvent 0.4 mol, reaction temperature 45°C, catalyst (alkaline resin D201-OH) 0.6 g and oxygen pressure 0.3 MPa, reaction time 40 min.)

Table 1: gradient elution

Time (min)	Acetonitrile (%)	Distilled water (%)
0	30	70
8	50	50
11	90	10
20	90	10

Gradient elution used acetonitrile and distilled water as mobile phases.

Table 2: Physicochemical properties of macroporous alkaline resin

Functional group	$-\text{CH}_2\text{N}^+(\text{CH}_3)_3\cdot\text{OH}^-$
Anion exchange capacity (mmol/g)	3.2
Moisture content (%)	50-60
BET surface area (m <sup>2</sup> /g)	23.3
Average pore diameter (nm)	21.9
Average pore volume (cm <sup>3</sup> /g)	0.75
Particle size (mm)	0.3-1.2
Wet apparent density (g/ml)	0.65-0.73
Wet true density (g/ml)	1.06-1.10