

SUPPORTING INFORMATION

Study on selective hydrogenation of isophorone

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Type of hydrogenation reaction:

The gas chromatogram of reaction liquid for selective hydrogenation of isophorone is shown in Figure S1. In Figure S1, (a) is the gas chromatogram of 3,3,5-trimethylcyclohexanone, (b) is the gas chromatogram of 3,3,5-trimethylcyclohexanol, and (c) is the gas chromatogram of reaction liquid for selective hydrogenation of isophorone. The NMR spectra (^1H , ^{13}C) of 3,3,5-trimethylcyclohexanone are shown in Figure S2. The NMR spectra (^1H , ^{13}C) of 3,3,5-trimethylcyclohexanol are shown in Figure S3. The NMR spectra (^1H , ^{13}C) of selective hydrogenation of 6-methylhept-5-en-2-one are shown in Figure S4. The NMR spectra (^1H , ^{13}C) of selectivity hydrogenation of (E)-4-phenylbut-3-en-2-one are shown in Figure S5. The gas chromatogram of reaction liquid for selective hydrogenation of isophorone is shown in Figure S6. In Figure S6, (a) is the gas chromatogram of Methyl isobutyl ketone, and (b) is the gas chromatogram of reaction liquid for selective hydrogenation of isopropylidene acetone.

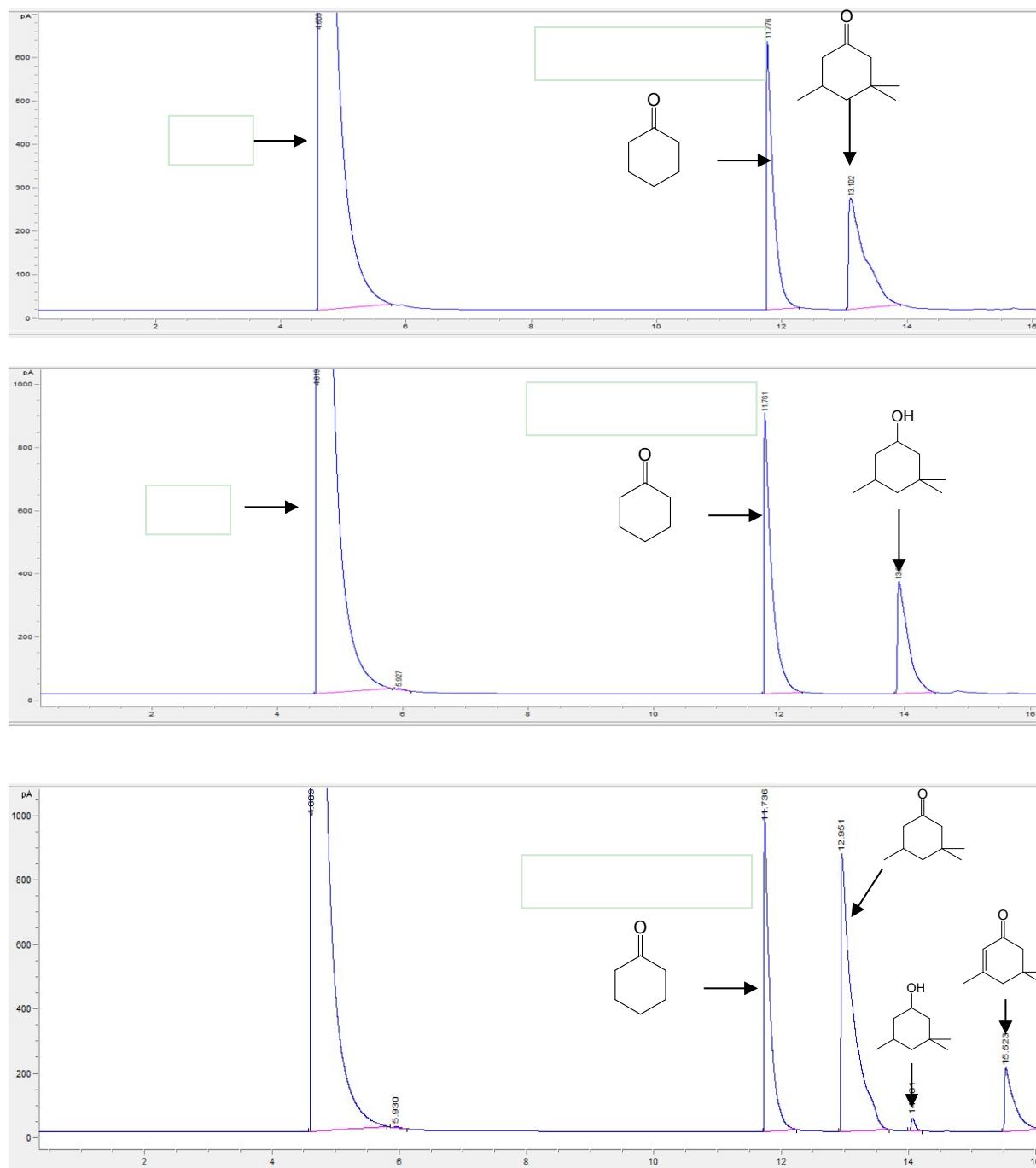


Figure S1. GC chromatograms of 3,3,5-trimethylcyclohexanone(a), GC chromatograms of 3,3,5-trimethylcyclohexanone(b) and the products from selectivity hydrogenation of Isophorone over the Raney nickel catalyst (c) with tetrahydrofuran. Reaction conditions: 298 K, 1 h; 1.16 g Isophorone, 0.05 g catalysis, 2.0 MPa H₂.

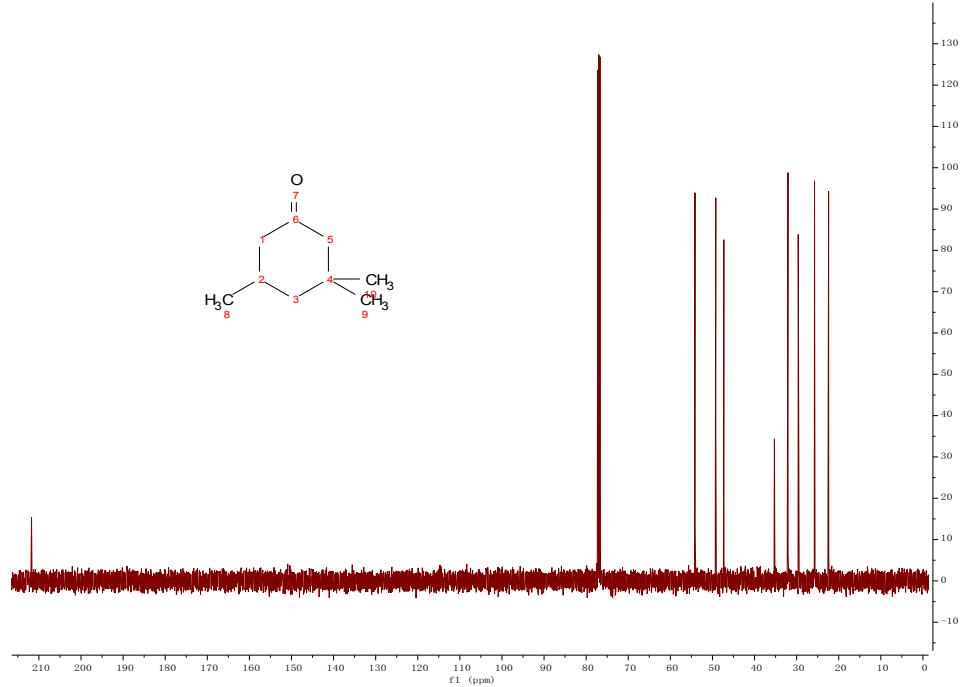
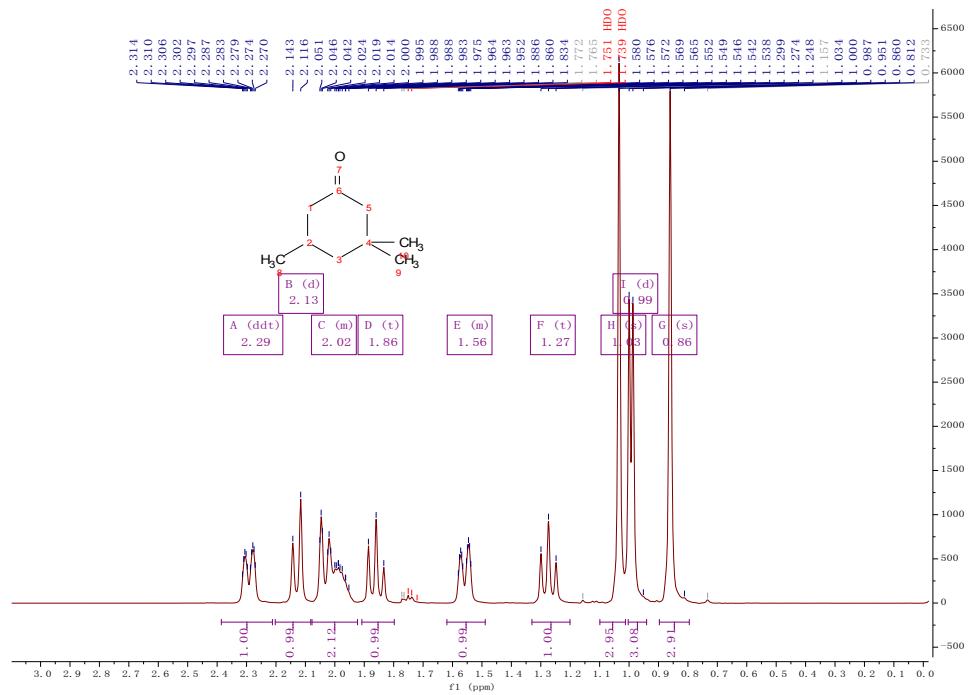


Figure S2. ^1H and ^{13}C NMR spectra of 3,3,5-Trimethylcyclohexanone obtained from selectivity hydrogenation of Isophorone.

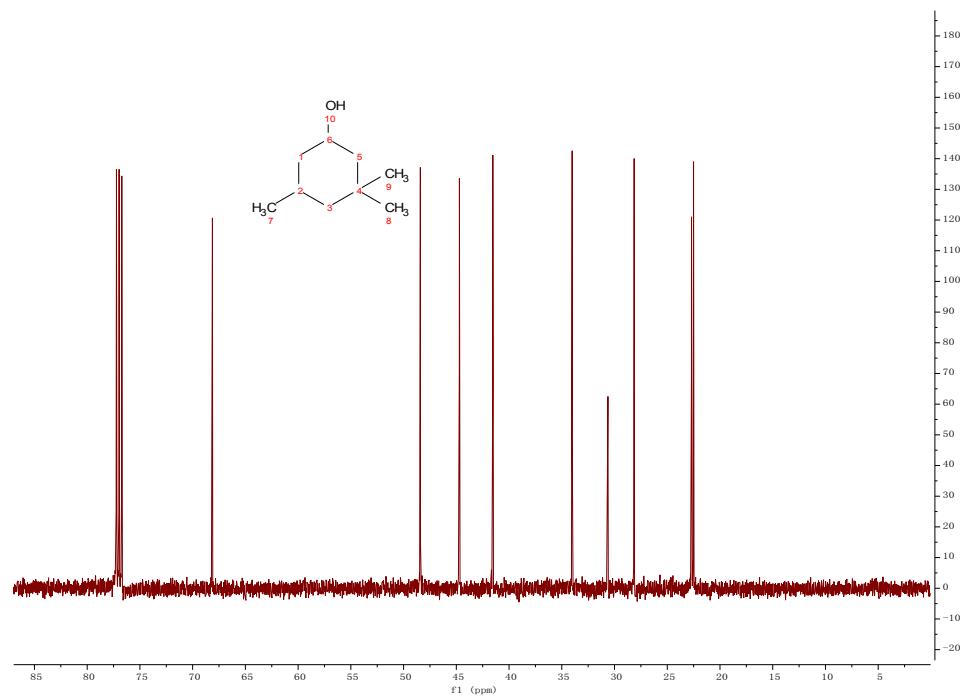
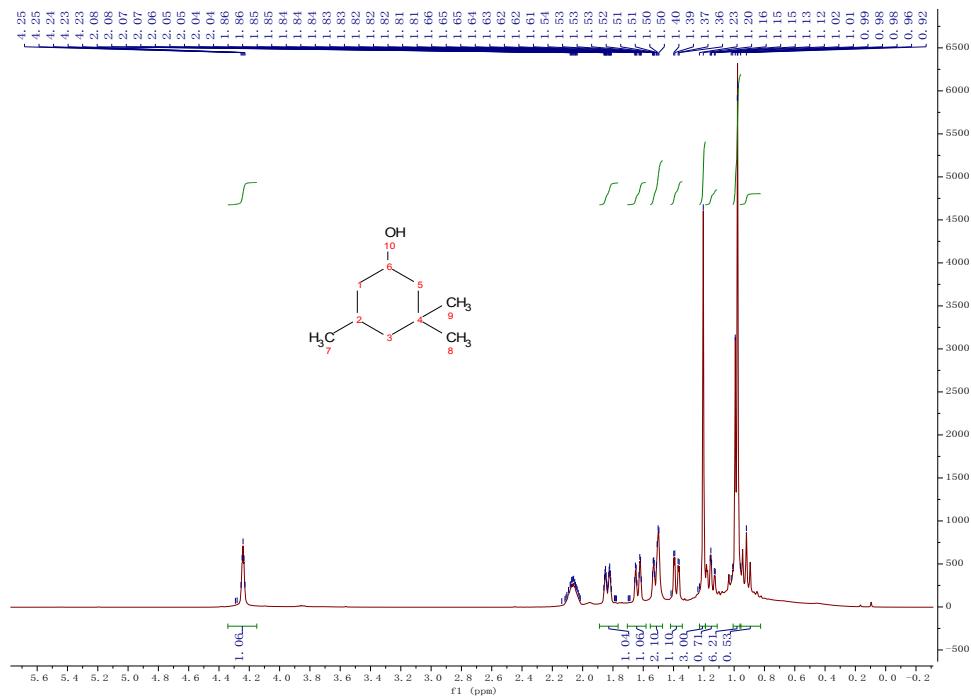


Figure S3. ¹H and ¹³C NMR spectra of 3,3,5-Trimethylcyclohexanol obtained from selectivity hydrogenation of Isophorone.

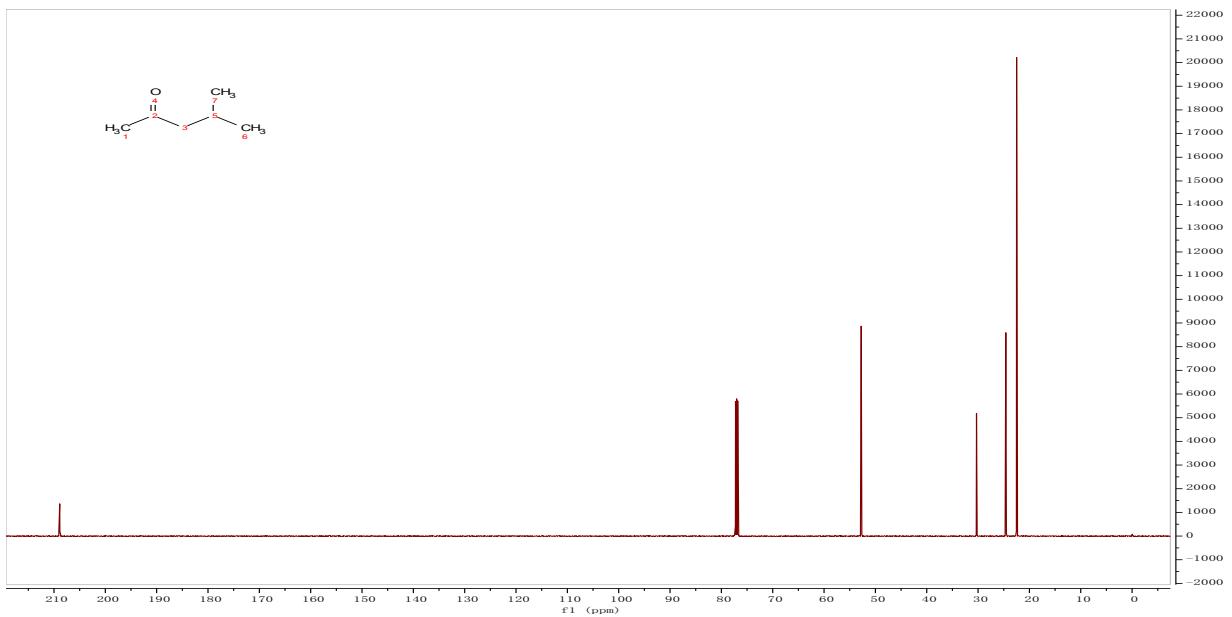
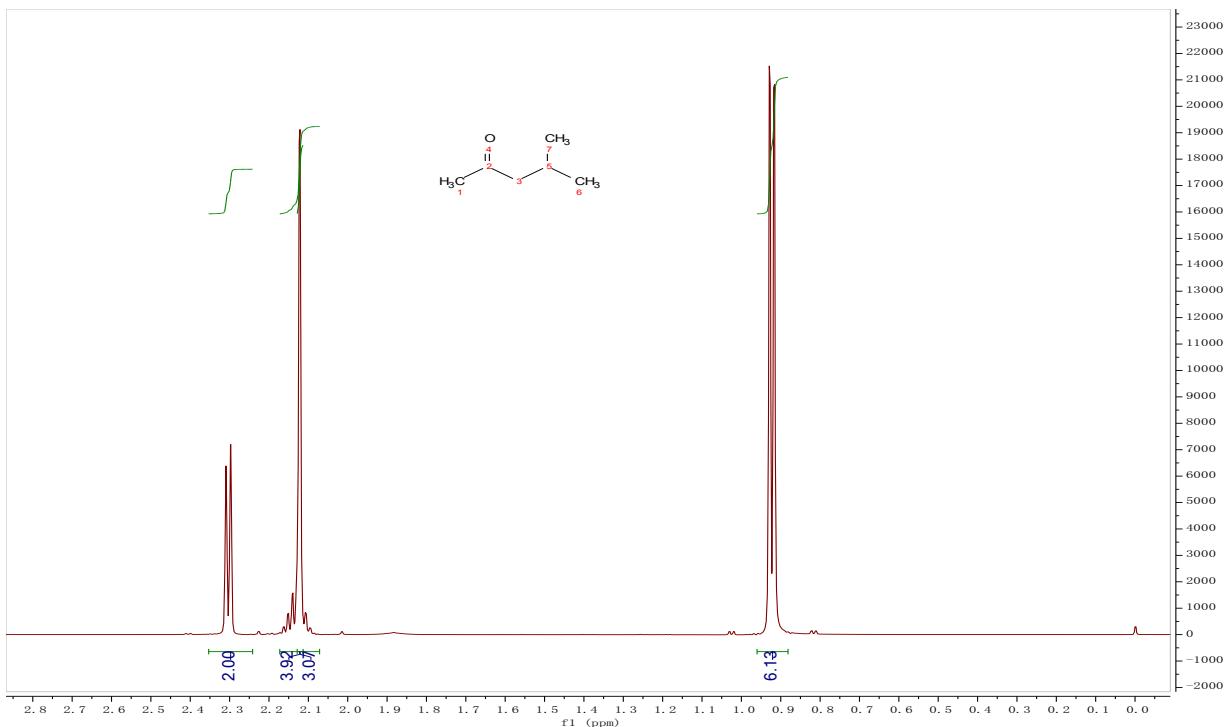


Figure S4. ^1H and ^{13}C NMR spectra of 6-methylheptan-2-one obtained from selectivity hydrogenation of 6-methylhept-5-en-2-one.

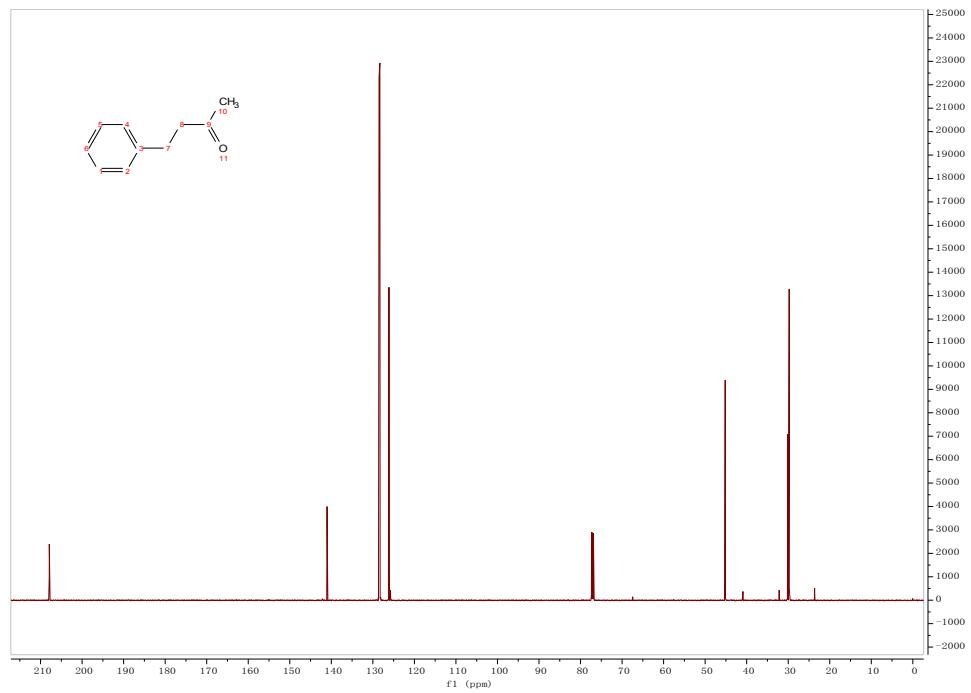
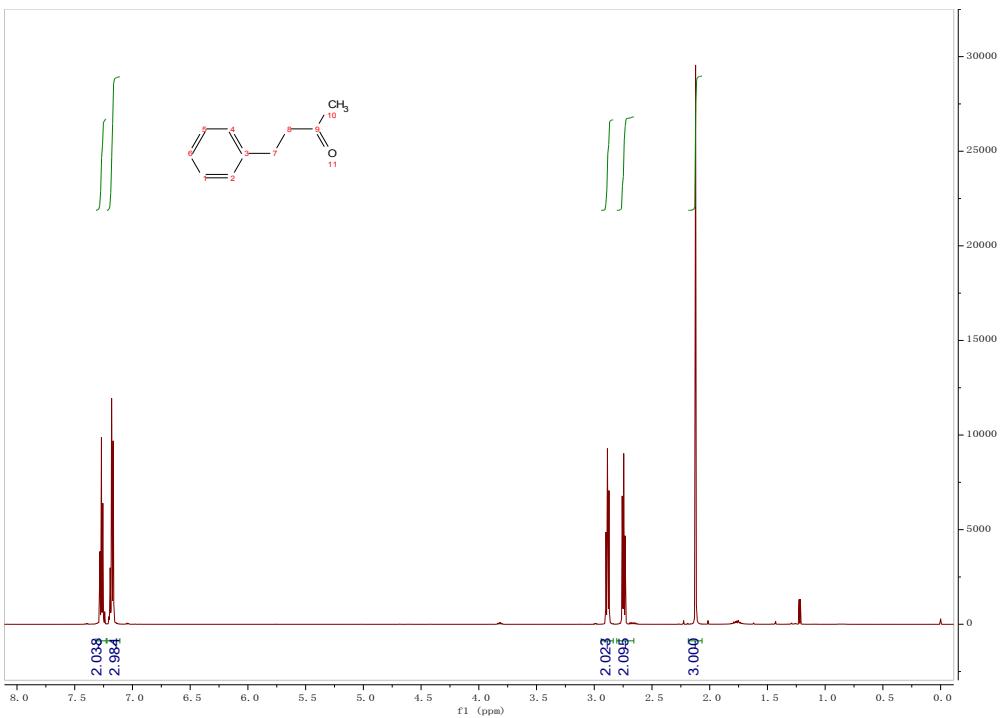


Figure S5. ¹H and ¹³C NMR spectra of 4-phenylbutan-2-one obtained from selectivity hydrogenation of (E)-4-phenylbut-3-en-2-one.

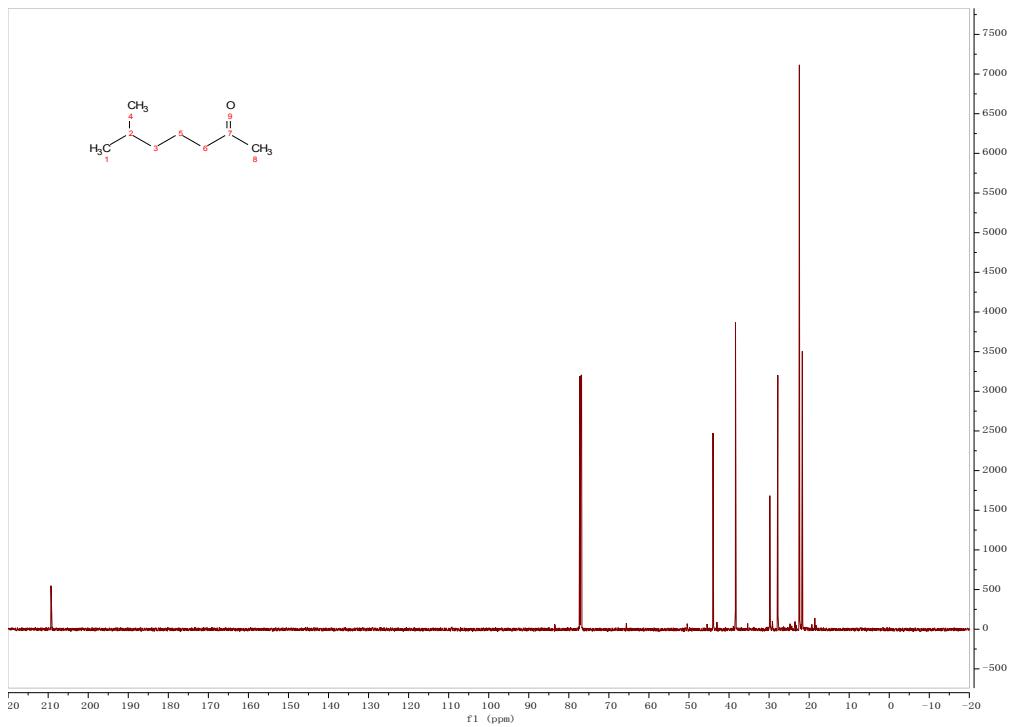
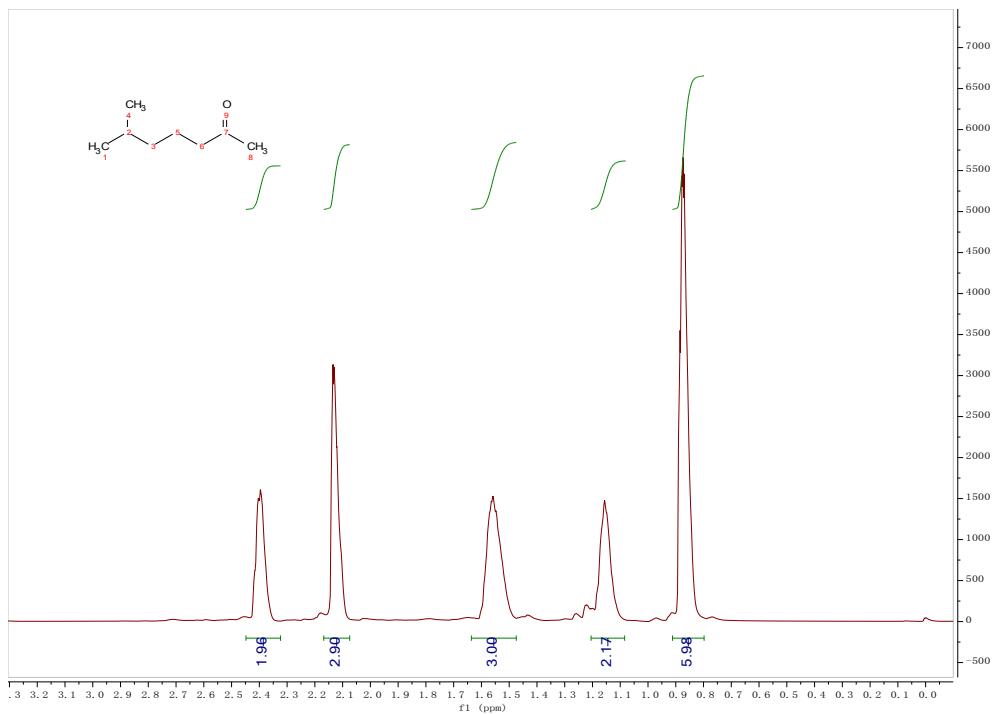


Figure S6. ¹H and ¹³C NMR spectra of methyl isobutyl ketone obtained from selective hydrogenation of isopropylidene acetone.