Supporting Information for

# Highly Efficient Conversion of Terpenoid Biomass to Jet-fuel Range Cycloalkanes in a Biphasic Tandem Catalytic Process

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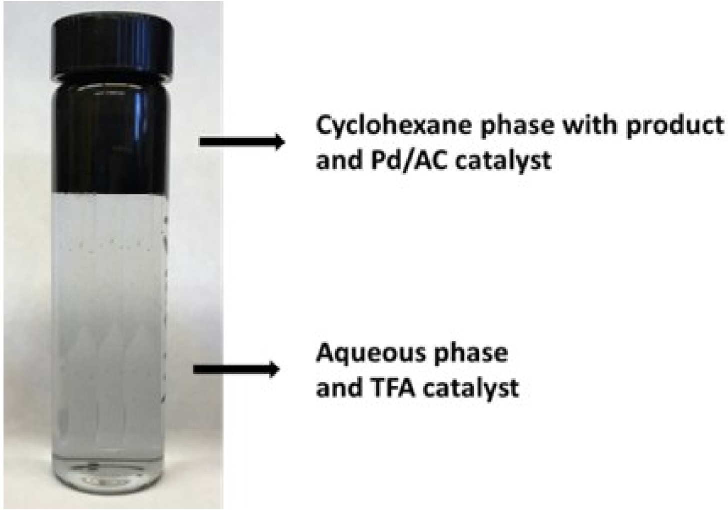
**Scheme S1**. Photo of the product sample after the conversion of 1,8-cineole in the BiTCP. Reaction conditions: 0.16 g 1,8-cineole, 0.01 g Pd/AC catalyst, 0.5 M TFA in 25 mL DI $H_2O$, 5 mL cyclohexane, 120 ℃, 1 MPa initial pressure of $H_2$, 1 h.



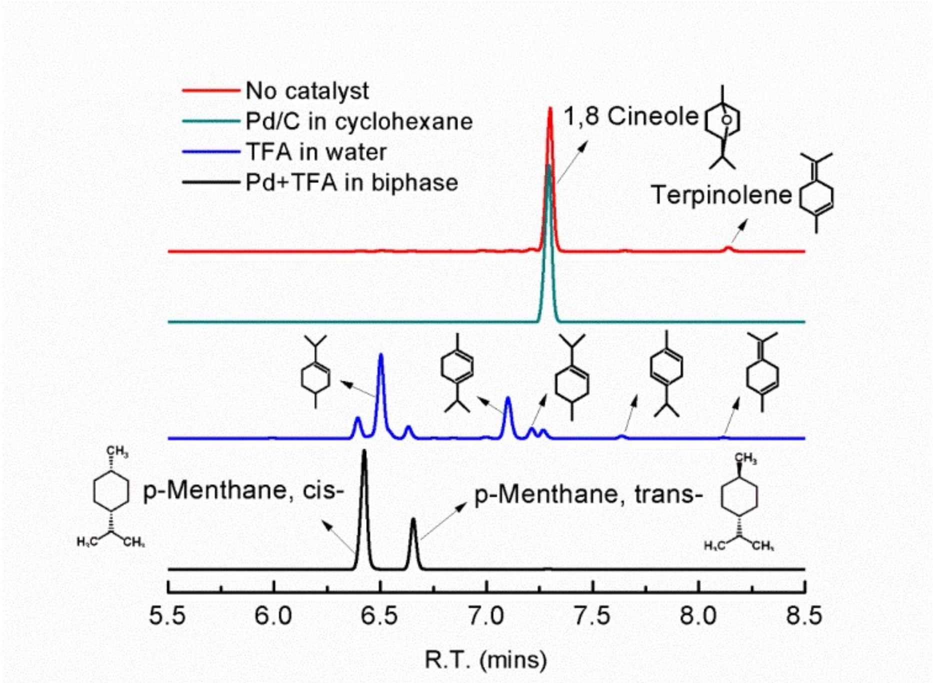


**Figure S1**. GC-MS spectra of the products after the conversion of 1,8-cineole in the single-phase catalytic process and the biTCP, respectively. Reaction conditions: 0.16 g 1,8-cineole, 0.01 g Pd/AC catalyst, 0.5 M TFA in 25 mL DI $H_2O$ (if applicable), 5 mL cyclohexane (if applicable), 120℃, 1 MPa initial pressure of $H_2$, 1 h.

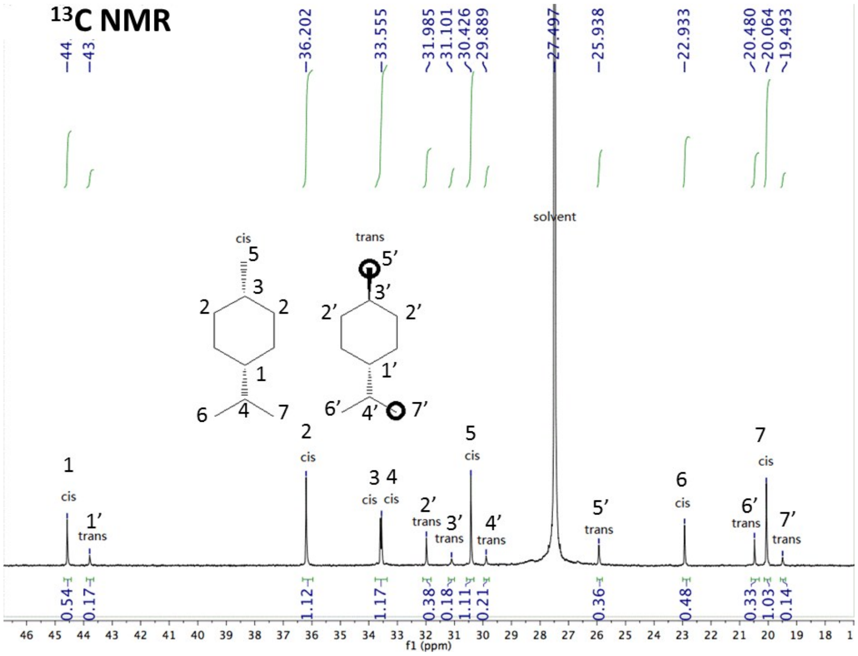


**Figure S2.** $^{13}$C NMR spectrum of the products after the conversion of 1,8-cineole. Reaction conditions: 0.8 g 1,8-cineole, 0.05 g Pd/AC catalyst, 1 M TFA in 25 mL DI $H_2O$, 5 mL cyclohexane, 150℃, 4 MPa initial pressure of $H_2$, 1 h.

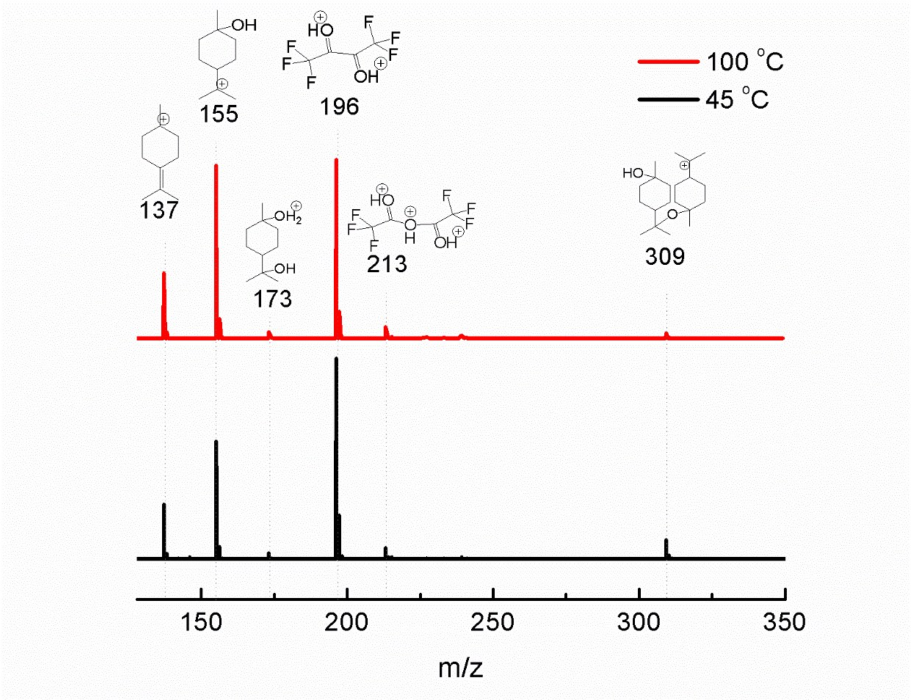


**Figure S3.** TOF/MS spectra of the products and intermediates observed for the biTCP under low reaction temperatures (100 ºC and 45 ºC respectively). Sample preparation: 0.16 g of 1,8-cineole was dissolved in biphasic solvents (25 mL DI $H_2O$ and 5 mL cyclohexane) with 0.5 M TFA.

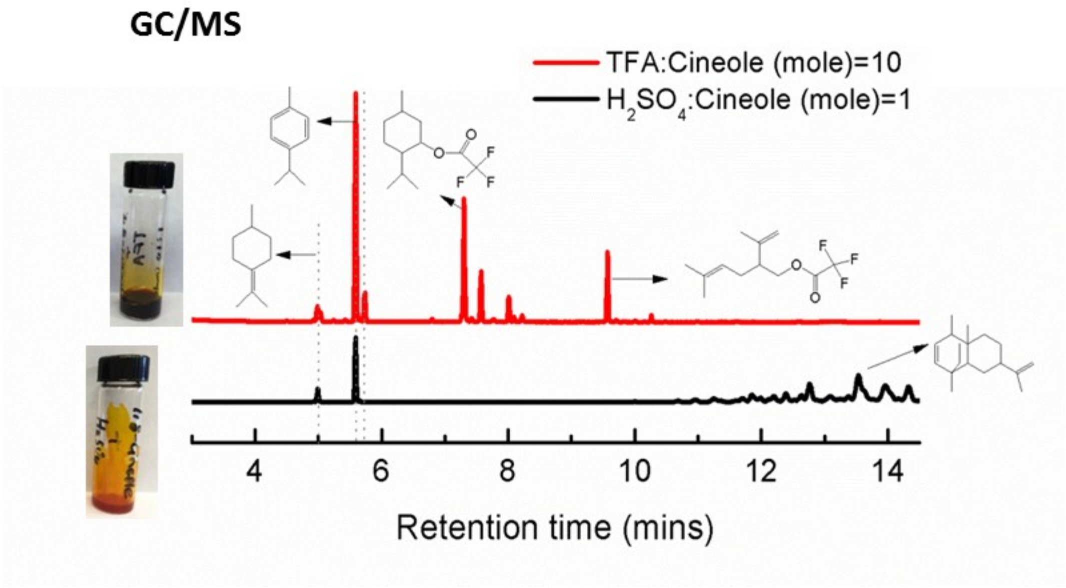


**Figure S4.** GC/MS spectra of the mixtures of an acid (TFA or $H_2SO_4$) with 1,8-cineole. The photos show the formation of the dark brown colored mixture of TFA with 1,8-cineole or the brown colored mixture of $H_2SO_4$ with 1,8-cineole at room temperature.