

### Electronic supplementary information

The estimation of the solubility of ( $\pm$ )-citronellal in compressed CO<sub>2</sub> in the presence of H<sub>2</sub>O at different CO<sub>2</sub> pressures was carried out in an 85 ml high-pressure view cell under the reaction conditions. A certain amount of ( $\pm$ )-citronellal and 17 ml H<sub>2</sub>O were added, then the reactor was heated up to 120 °C and then CO<sub>2</sub> was introduced into the reactor to a certain pressure. At each pressure the mixture was stirred for several minutes, and then the stirring was stopped and the phase behaviour was observed by the naked eye from the windows. The solubility was calculated from the amount of ( $\pm$ )-citronellal added divided by the volume of CO<sub>2</sub> (volume of view cell) at the CO<sub>2</sub> pressure, in which all the ( $\pm$ )-citronellal dissolved into the CO<sub>2</sub> phase forming a homogeneous phase.

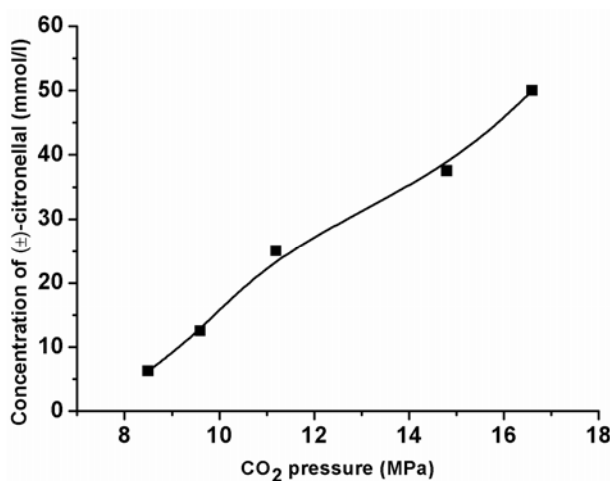


Fig. S1 The solubility of ( $\pm$ )-citronellal in CO<sub>2</sub> at different CO<sub>2</sub> pressures in the presence of water

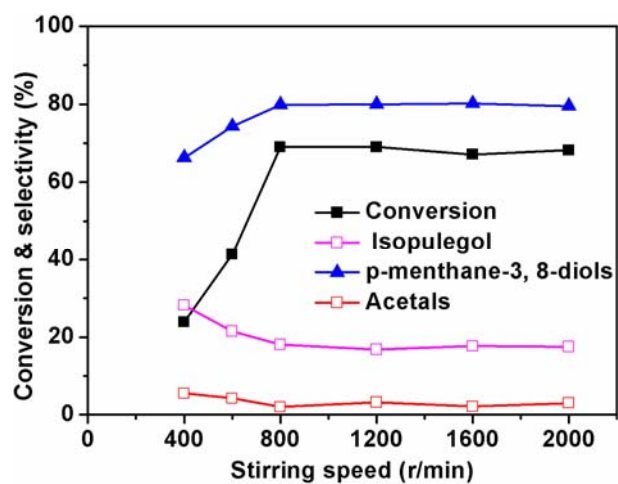


Fig. S2 Influence of stirring speed on the cyclization of (±)-citronellal. Reaction conditions: (±)-citronellal: 1 mmol, water: 10 ml, CO<sub>2</sub>: 1 MPa, T: 100 °C, t: 1.5 h.