

Table S1 List of photocatalysts for conversion of levulinic acid in the presence of alcohols as H₂ donor solvents.

Year	Substrate	H ₂ Donor	Catalyst	T (°C)	t (h)	X ^a /Y ^b /TOF ^c	S (%) GVL ^d /HMHD ^e /IL ^f / PA+HOAc ^g	Re f.
2016	LA	Isopropanol	Pt/P25-TiO ₂	20	9	54% ^a	55.2% ^d /33.7% ^e /2.3% ^f /6.8% ^g	[1]
			Pt/NT-TiO ₂			47% ^a	48.1% ^d /40.8% ^e / 2.1% ^f /7.1% ^g	
			Pt/R-TiO ₂			56% ^a	59.2% ^d /31.4% ^e / 2.3% ^f /6.4% ^g	
			Pt/RA-TiO ₂			69% ^a	69.5% ^d /21.9% ^e / 2.0% ^f /4.5% ^g	
			Pd/RA-TiO ₂			71% ^a	76.4% ^d /17.4% ^e / 1.9% ^f /4.5% ^g	
			Au/RA-TiO ₂			79% ^a	85.3% ^d /8.2% ^e / 2.0% ^f /3.1% ^g	
			RA-TiO ₂			5.60%	2.5% ^d /ND ^e / 2.0% ^f / 89.2% ^g	
2021	LA	Ethanol	Niobic Acid (HY-340)	25	24 + 48 h in darkness	3.3x10 ⁻⁶ s ⁻¹ c	44.7% ^d	[2]
2021	LA	Isopropanol	Polymer-supported carboxyl functionalized Zn-porphyrin (PSCFZnPP)	25	24	75% ^a		[3]
2022		2-propanol	Pt/TiO ₂	30	12	85% ^a /11% ^b		[4]
		2-propanol	Pt/TiO ₂ + NaOH (powder)	30	12	67% ^b		
		2-propanol	Pt/TiO ₂ + NaOH (aqueous)	30	12	>99% ^b		
		methanol	Pt/TiO ₂	30	12	17% ^b		
		ethanol	Pt/TiO ₂	30	12	95% ^b		
		2-butanol	Pt/TiO ₂	30	12	57% ^b		
		2-propanol	Pt/ TiO ₂ (thermocatalytic)	80	15	93% ^b		

X = Conversion (%); Y = Yield (%); TOF = Turnover Frequency (s⁻¹); S = Selectivity (%); LA = Levulinic Acid; GVL = γ -valerolactone; HMHD = 6-hydroxy-6-methyl-heptane-2,5-dione; IL = isopropyl levulinate; PA= Pentanoic Acid; HOAc = Acetic Acid

1. Zhang, H., et al., *Hydrogenative cyclization of levulinic acid into γ -valerolactone by photocatalytic intermolecular hydrogen transfer*. *Green Chemistry*, 2016. **18**(8): p. 2296-2301.
2. Jose Filho, B., et al., *A promising approach to transform levulinic acid into γ -valerolactone using niobic acid photocatalyst and the accumulated electron transfer technique*. *Applied Catalysis B: Environmental*, 2021. **285**: p. 119814.
3. Khajone, V.B., et al., *Recyclable polymer-supported carboxyl functionalized Zn-porphyrin photocatalyst for transfer hydrogenation of levulinic acid to γ -valerolactone*. *Biomass Conversion and Biorefinery*, 2021: p. 1-11.
4. Bunrit, A., et al., *Photo-Thermo-Dual Catalysis of Levulinic Acid and Levulinate Ester to γ -Valerolactone*. *ACS Catalysis*, 2022. **12**: p. 1677-1685.