

**Valorization of *Chlorella* microalgae residual biomass via catalytic acid
hydrolysis/dehydration and hydrogenolysis/hydrogenation**

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Supplementary Information

Table S1. Sugars composition of the initial microalgal biomass and the solids obtained after the extraction of lipids and proteins.

Sample	Glucose (wt.%)	Xylose (wt.%)	Galactose + Arabinose + Mannose (wt.%)
LL	26.8	3.3	3.4
LL-Res-P	37.7	1.6	4.7
ML	16.8	5.2	3.1
ML-Res	22.8	3.5	1.2
ML-Res-P	12.4	11.4	3.9
MF	8.9	5.9	0.0
MF-Res	9.9	5.8	0.0
MF-Res-P	10.0	6.0	0.0
AF	5.7	8.8	0.0
AF-Res	6.2	11.8	0.0
AF-Res-P	7.8	18.8	0.0

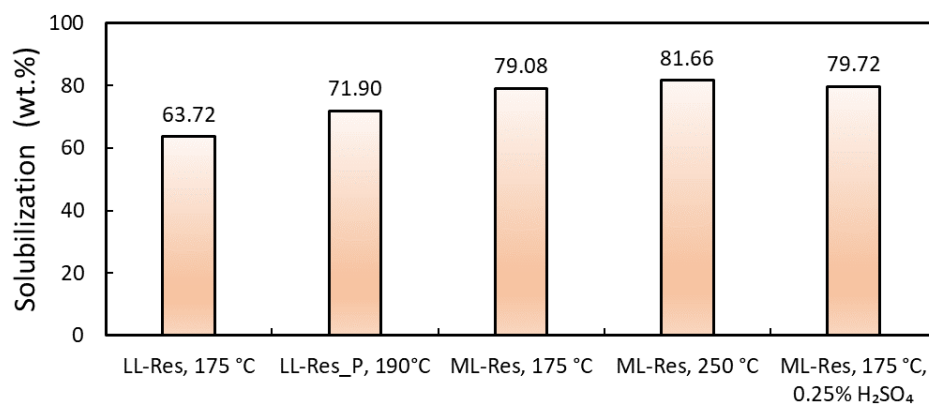


Figure S1. Solubilization degree of LL-Res and ML-Res *Chlorella vulgaris* biomass.

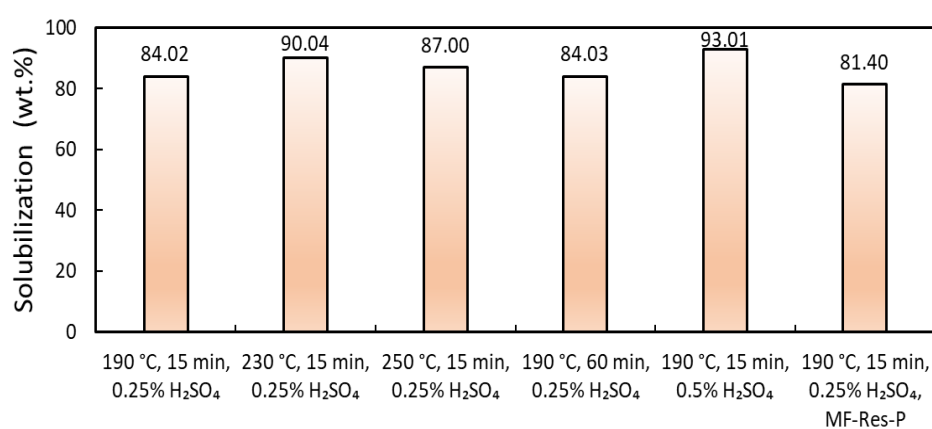


Figure S2. Solubilization degree of MF-Res and MF-Res-P *Chlorella vulgaris* biomass.

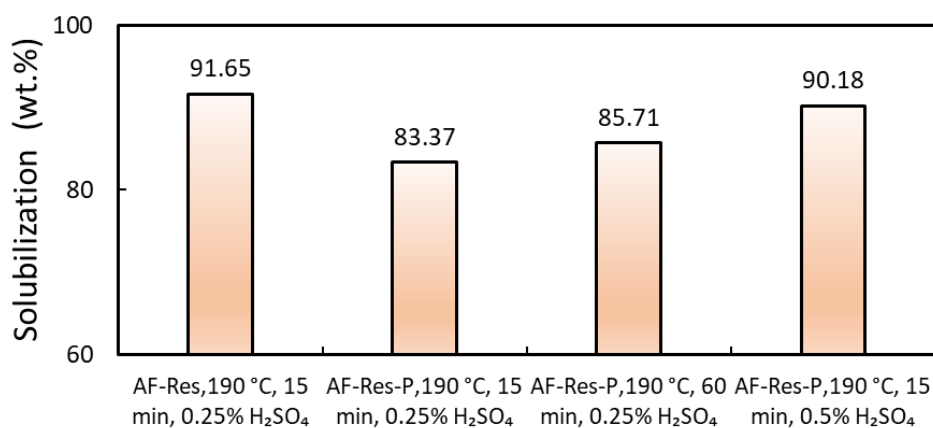


Figure S3. Solubilization degree of AF-Res and AF-Res-P *Chlorella vulgaris* biomass.

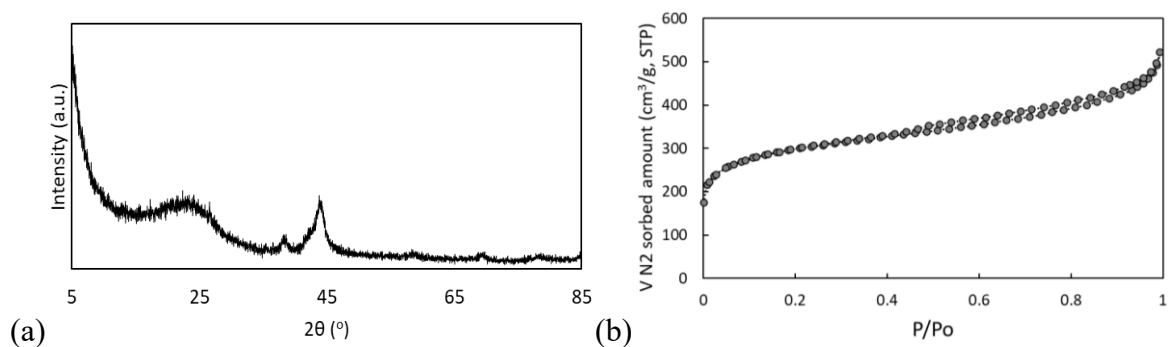


Figure S4. (a) XRD and (b) nitrogen adsorption-desorption isotherms of 5%Ru/AC.

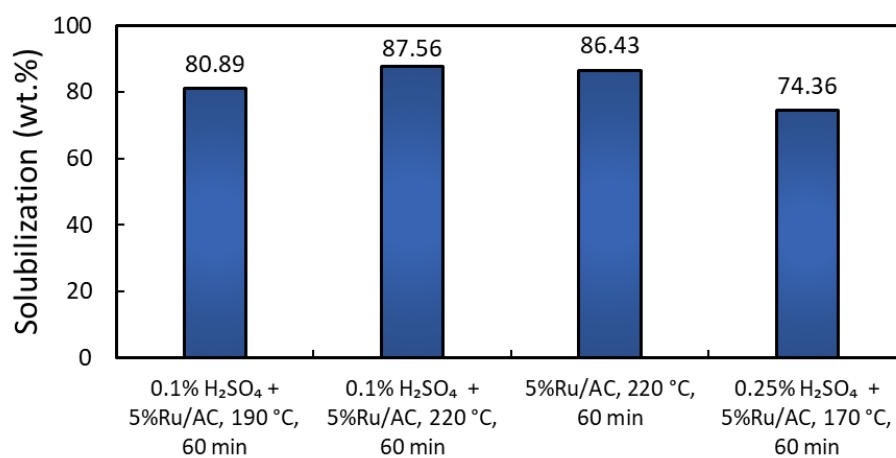


Figure S5. Solubilization degree of AF-Res and AF-Res-P *Chlorella vulgaris* biomass.

Table S2. Thermal analysis of solids recovered after the hydrolysis experiments of MF-Res biomass.

Reaction conditions	Mass loss step 25-120°C		Mass loss step 120-550 °C		Residual mass (%, 550°C)
	T _{DTG max} , (°C)	Mass loss (%)	T _{DTG max} , (°C)	Mass loss (%)	
190 °C, 15 min, 0.25% H ₂ SO ₄	71.6	3.9	343	47.5	41.6
250 °C, 15 min, 0.25% H ₂ SO ₄	64.4	1.7	403	47.6	50.6
190 °C, 60 min, 0.25% H ₂ SO ₄	62.4	2.2	352	46.3	50.7
190 °C, 15 min, 0.5% H ₂ SO ₄	66.9	2.2	352	51.5	44.3