SUPPLEMENTARY INFORMATION

Enhanced H_2 production through biomass pyrolysis, applying an alkaline ceramic as a bifunctional material; lithium cuprate (Li_2CuO_2)

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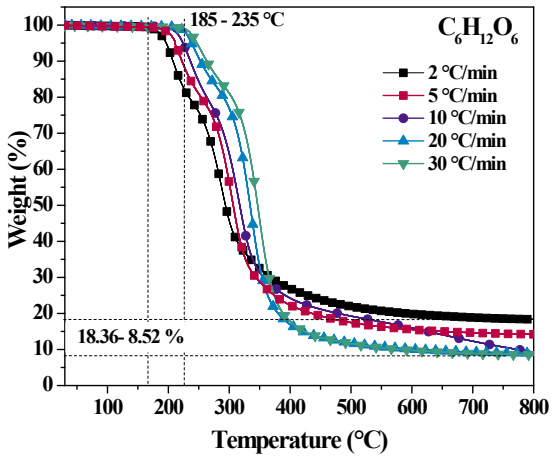

Fig. S1. Glucose thermogravimetric data using different heating rates.

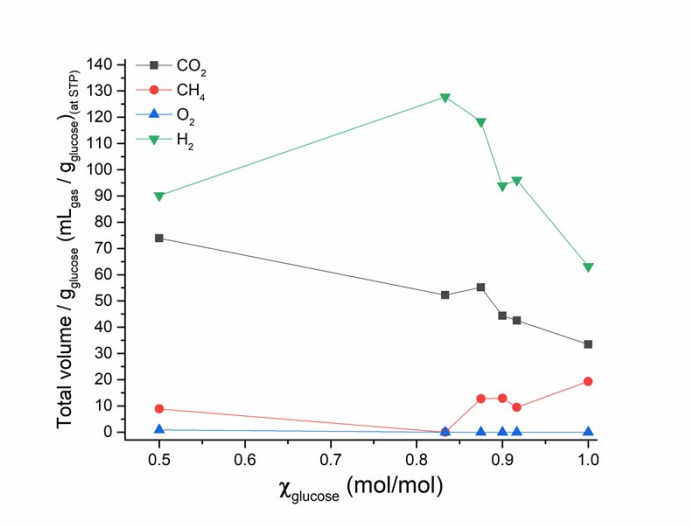

Fig. S2. Total gas volume per gram of glucose of the produced H_2, CO_2, O_2 and CH_4 from the pyrolysis process using different molar ratio of Li_2CuO_2:glucose, all represented as function of the molar fraction of glucose in each sample.

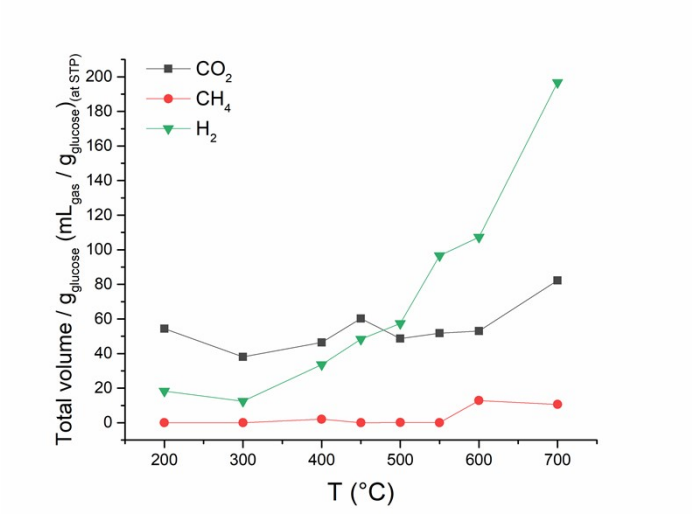

Fig. S3. Total gas volume of H_2, CO_2 and CH_4 produced from the pyrolysis of 1C:5G sample through the dynamic-isothermal test at different target temperatures from 200 to 700 °C, normalized per gram of glucose.

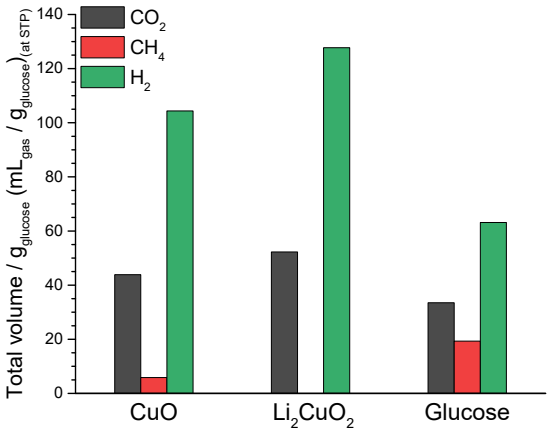

Fig. S4. Total gas volume of H_2, CO_2 and CH_4 produced from the dynamical pyrolysis of cupper-containing samples, namely Li_2CuO_2 and CuO at 1 to 5 molar proportion to glucose. Glucose's total gas volumes were added for comparison purposes.

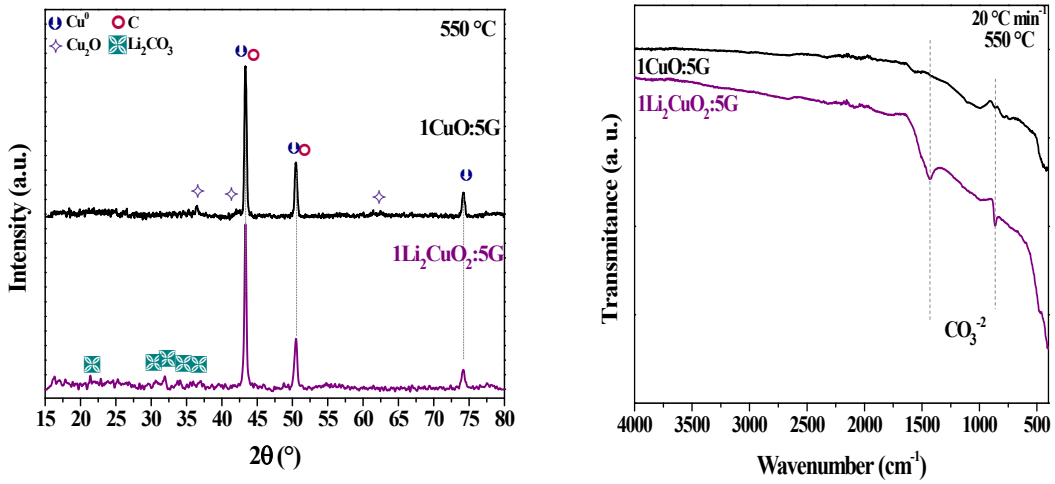

Fig. S5. Characterization by XRD (left) and FTIR-ATR spectroscopy (right) of the solid products from the dynamic-isothermal test to 550 °C of different mixtures of glucose with a copper source (Li_2CuO_2 or CuO) at 5 to 1 molar ratio

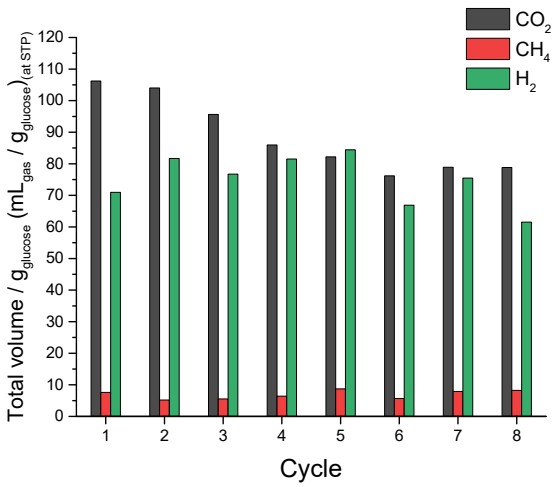

Fig. S6. Total produced CO_2 per gram of glucose for each cycle of the successively addition process.

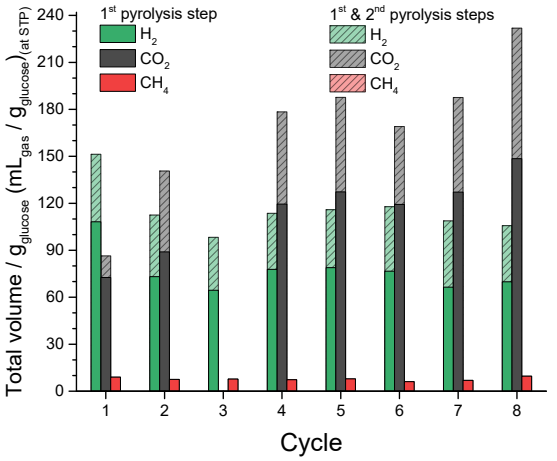

Fig. S7. Total volume gas of H_2, CO_2 and CH_4 per gram of glucose for each cycle of the regeneration cyclic process depending on the first (solid-colored bars) or both (shadow dashed bars) pyrolysis steps.