Electronic Supplementary Material (ESI) for Green Chemistry.

Supporting Information

Evidences of starch-microwave interactions under hydrolytic and pyrolytic conditions

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Table S1. Details of the reactors used in this study

Model	FlexiWAVE	Monowave 300	Monowave 50	Discover SP
Manufacturer	Milestone	Anton Paar	Anton Paar	CEM
Heat source	MW	MW	Convention heating	MW
Abbreviation in this study	-	AP-MW	AP-CH	-
Vessel size & material	100 mL, Teflon	10 mL, borosilicate	10 mL, borosilicate	10 mL, borosilicate
Reaction	Hydrolysis	Hydrolysis	Hydrolysis	Pyrolysis
Temperature sensor	FO	FO & IR[a], or IR only	IR	IR

[a] Power was controlled based on temperature measured by a FO sensor.

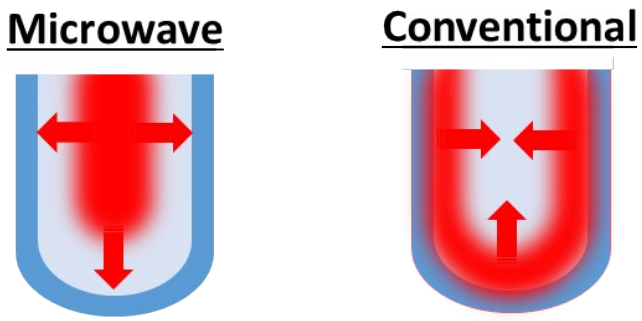

Figure S1. Heat generation and flow direction in microwaves (MWs) and conventional heating.

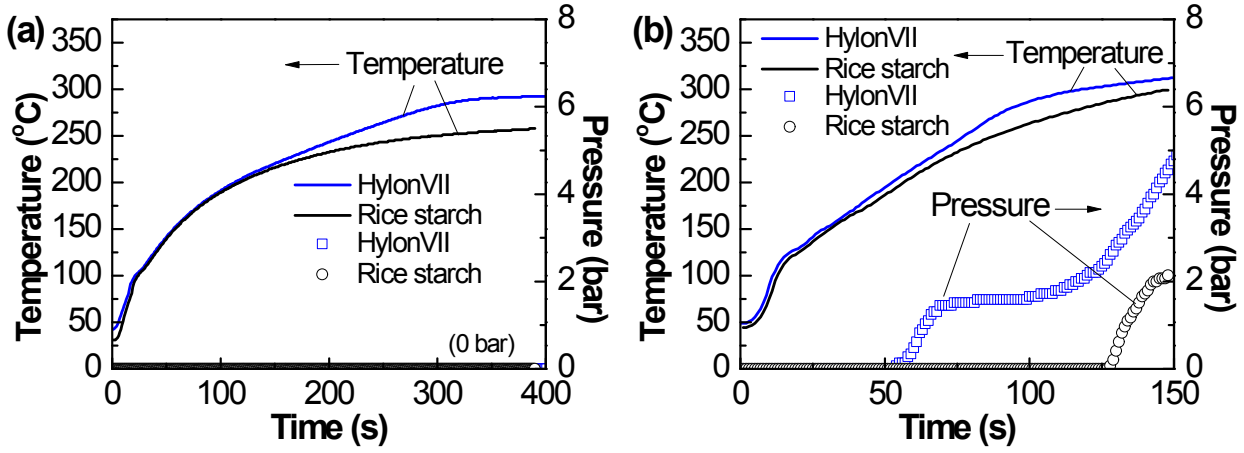

Figure S2. Temperature and pressure profiles of pyrolysis of rice starch and Hylon VII at a fixed power of 300 W in Discover SP (no water addition) at the solid loadings of (a) 0.1 g and (b) 0.3 g.

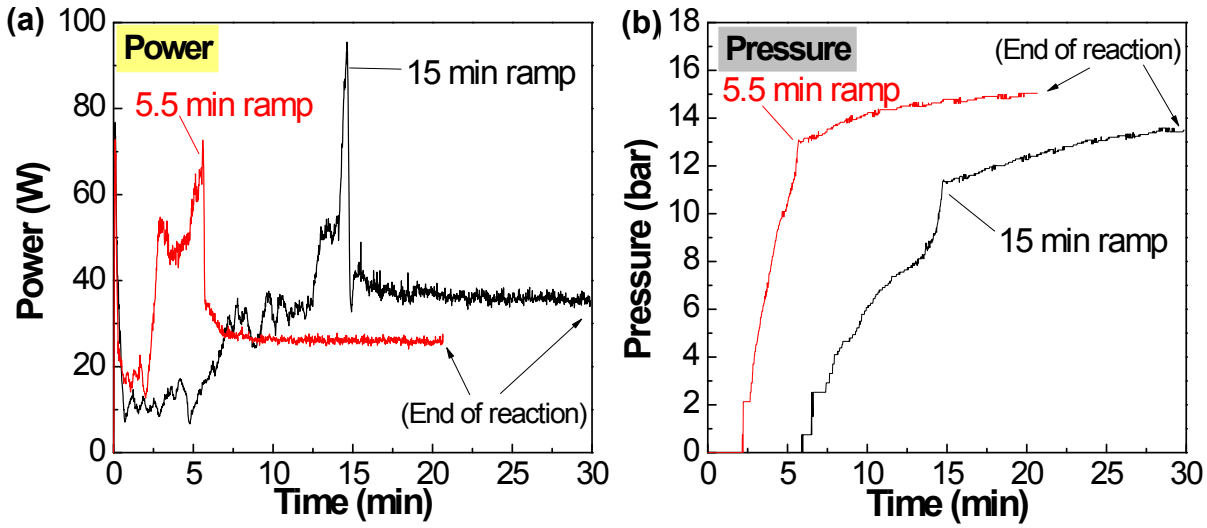

Figure S3. (a) Power and (b) pressure during starch hydrolysis at 200 °C with a ramp time of 5.5 min and 15 min (15 min holding, solid to water 1:20 wt/wt, FO-controlled AP-MW).