

Electronic Supplementary information

Acid-Free Microwave-Assisted Hydrothermal Extraction of Pectin and Porous Cellulose from Mango Peel Waste – Towards a Zero Waste Mango Biorefinery

Avtar S Matharu^{†a}, Joseph A Houghton^a, Covadonga Lucas-Torres^b and Andrés Moreno^b

Table S1: Selected CHN analysis of pectin samples and protein content according to the Kjeldahl method:

Sample	% C	% H	% N	Protein % (Conversion factor 6.25)
4	38.168	5.315	0.000	NA
2	37.730	5.288	0.000	NA
5	37.753	5.437	0.000	NA
6	37.776	5.384	0.000	NA
Conventional Acid	40.174	5.517	0.595	3.72

Table S2: Conditions for surface area analysis:

Surface area	5 point
t-plot micropore	5 point
BJH adsorption	20 point
BJH desorption	20 point

Table S3: Adsorptive properties:

Maximum manifold pressure	925 μ mHg
Density conversion factor	0.0015468
Therm. Tran. Hard-sphere diameter	3.860Å
Molecular cross-sectional area	0.162nm ²
Non-ideality factor for ideal gas law correlation	0.0000620

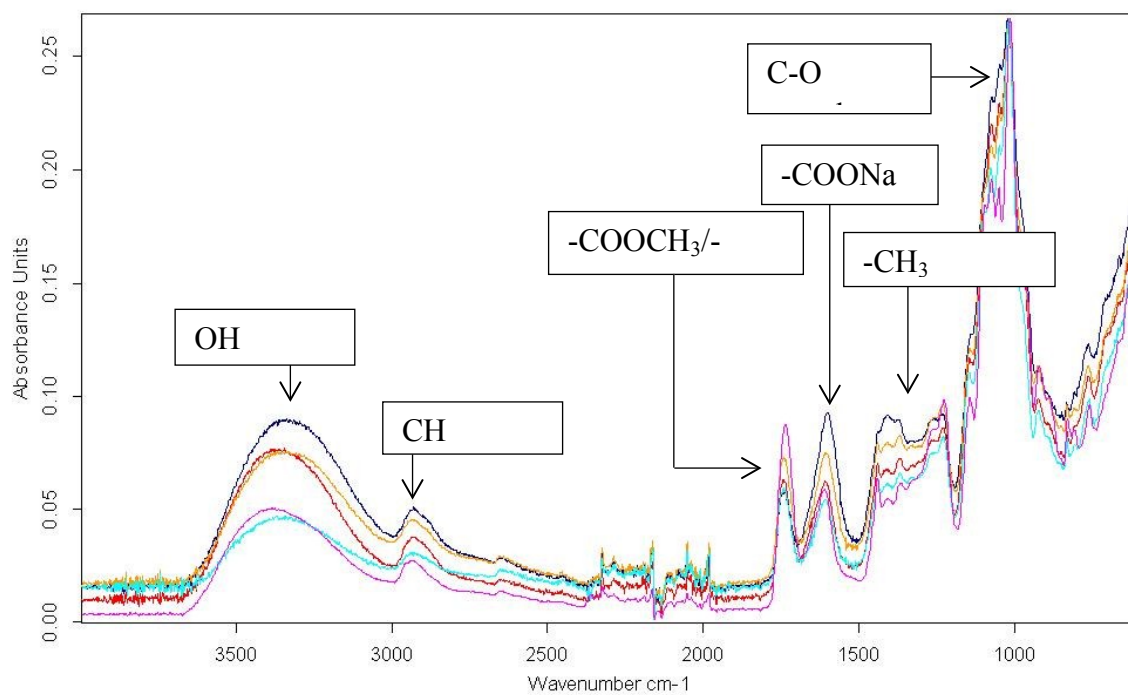


Figure S1. IR spectra of pectin obtained at differing peel:solvent ratios in the microwave assisted extraction compared to commercial pectin. Commercial pectin (pink), Entry 4 (blue), Entry 2 (yellow), Entry 5 (navy) and Entry 6 (red).

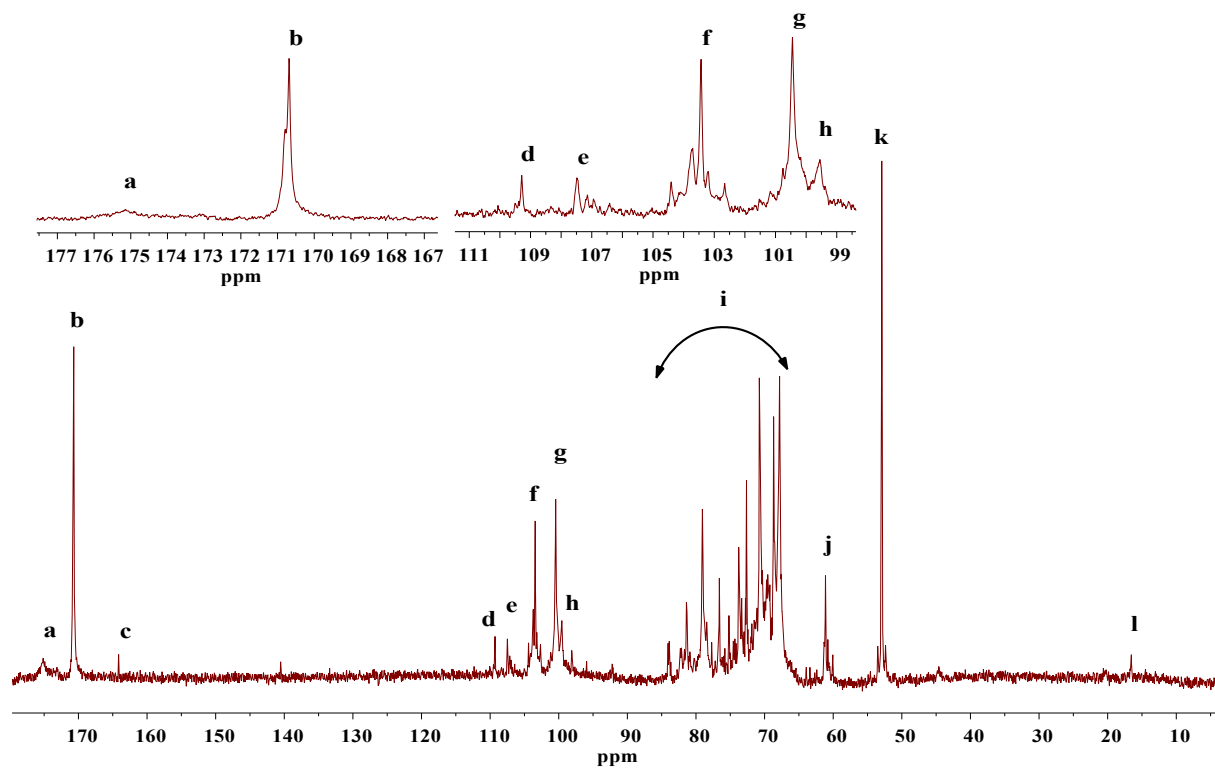


Figure S2. ^{13}C NMR spectra (500 MHz, D_2O) from *Tommy Atkins* microwave extracted pectin.

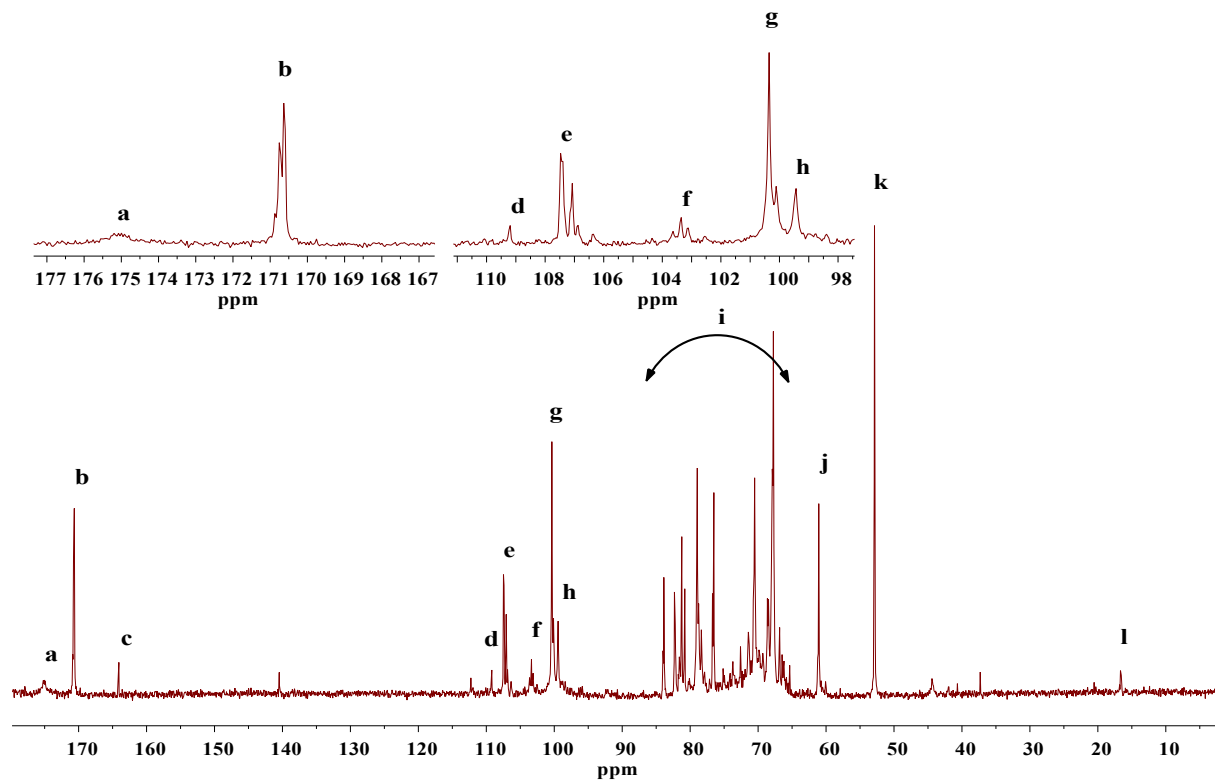


Figure S3. ^{13}C NMR spectra (500 MHz, D_2O) from *Alphonso* microwave extracted pectin.

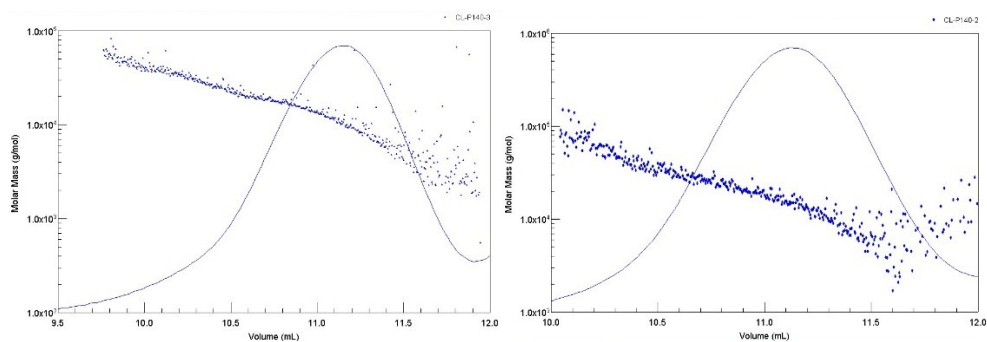


Figure S4. Refractive index and M_w GPC elution profiles of P140MARS-*Honey* (left) and P140MARS-*Alphonso* (right).