Supplementary Table 2. Different pre-treatments were applied to the raw spectra obtained from the Perkin Elmer Spectrum II FTIR® spectrometer and a PLSR model generated with the transformed spectra and reference values. A calibration set of samples was used to generate each model and was evaluated by an independent validation set of samples. Each model was evaluated based on its calibration R^2 and RMSE (mg/gDW) values, with those providing the lowest RMSE (mg/gDW) values for the validation set, chosen as the pre-treatment for the final model. The pre-treatments chosen for each variable measured are listed below with the calibration and validation R^2 and RMSE (mg/gDW) values from that PLSR model.

Cell Wall Component	**Calibration R_2**	**Calibration RMSE (mg/gDW)**	**Validation R^2**	**Validation RMSE (mg/gDW)**	**Spectral Pre-treatments**
Cell wall	0.95	14.59	0.88	16.89	Area Normalisation, Optical Scattering Correction
Total Carbohydrates	0.94	14.99	0.91	17.27	Baseline corrected, Multiple Scattering Correction, 2nd derivative with 9 smoothing points
Glucan	0.96	9.79	0.96	10.20	Standard Normal Variate, 2nd derivative with 9 smoothing points
Xylan	0.92	3.99	0.87	6.59	Standard Normal Variate, 2nd derivative with 9 smoothing points
Arabinan	0.87	1.84	0.64	4.13	Baseline corrected, 2nd derivative with 1 smoothing points
Galactan	0.87	2.88	0.77	3.78	Standard Normal Variate, 2nd derivative with 9 smoothing points
Mannan	0.72	1.19	0.41	2.15	2nd Derivative with 1 smoothing point
Total Lignin	0.93	7.76	0.92	10.86	Area Normalisation, Optical Scattering Correction
ASL	0.96	0.56	0.94	0.84	Baseline, Area Normalized, Second derivative
AIL	0.95	5.57	0.89	12.58	Optical Scattering Correction
Ash	0.97	5.91	0.97	14.00	Baseline, Area Normalized, 1st derivative