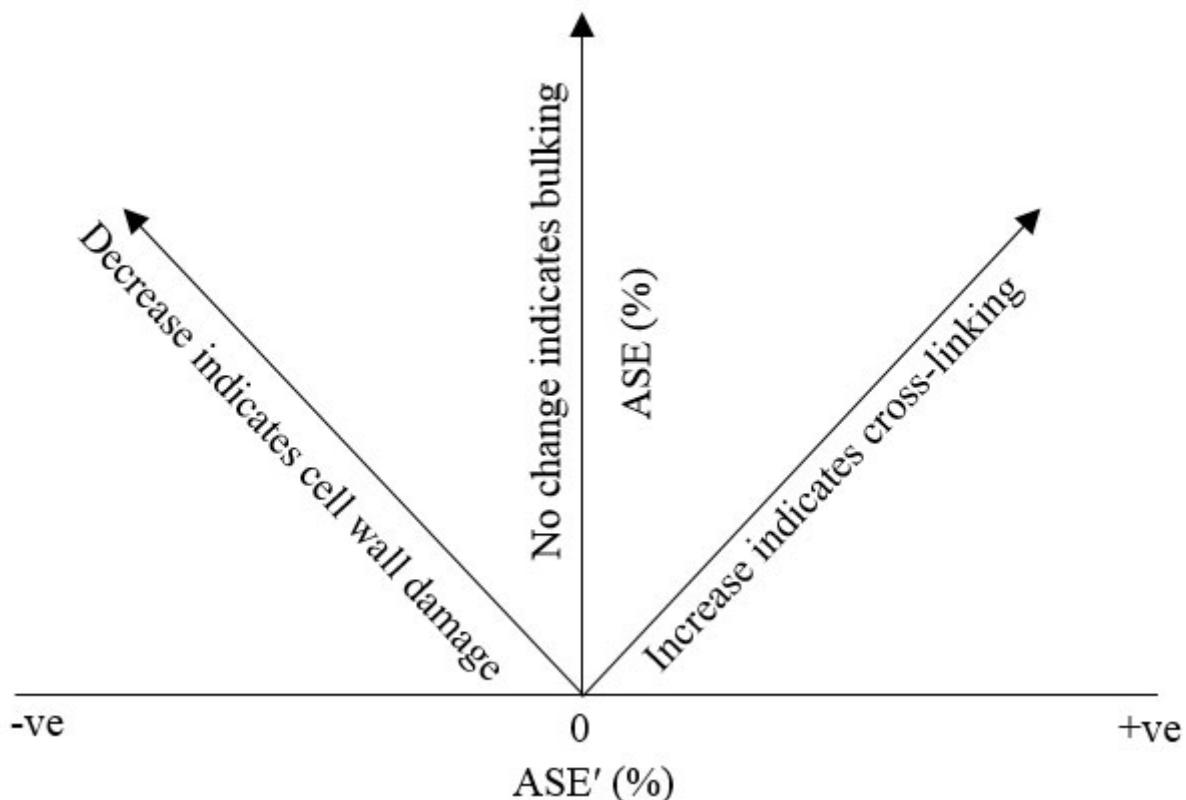
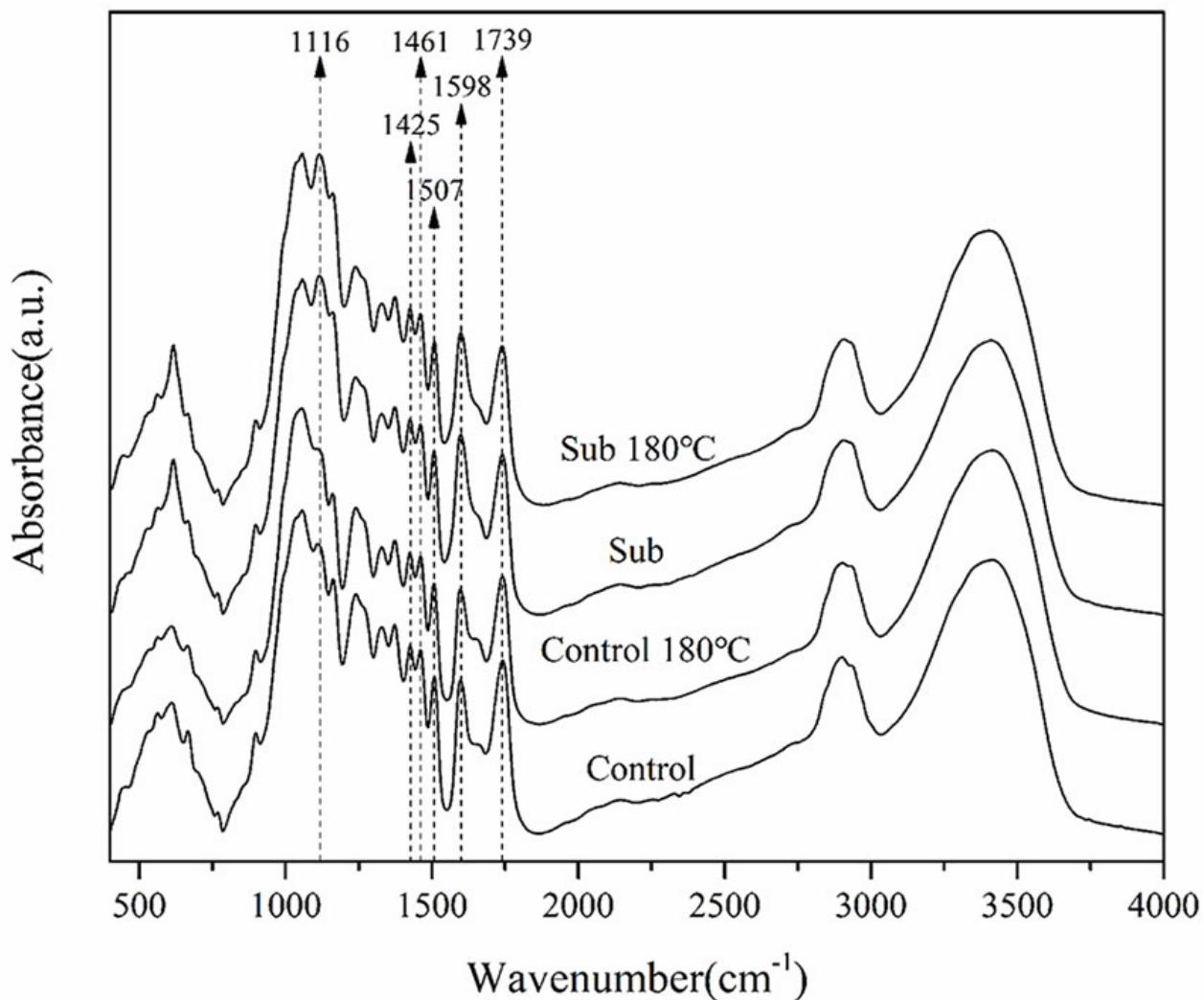


## Supplementary Material

**Fig. S1** - Relative changes in ASE and ASE' due to different forms of modification (Ohmae et al. 2002).



**Fig. S2** - Fourier transform infrared (FTIR) spectra for the Control, Control 180 °C, Sub and Sub 180 °C.



**Fig. S3** - Tangential (a) and volumetric (b) swelling rate of the specimens through moisture water uptake.

