Supporting Information for:

Crosslinked Waxy Maize Starch Based 'Green' Composites

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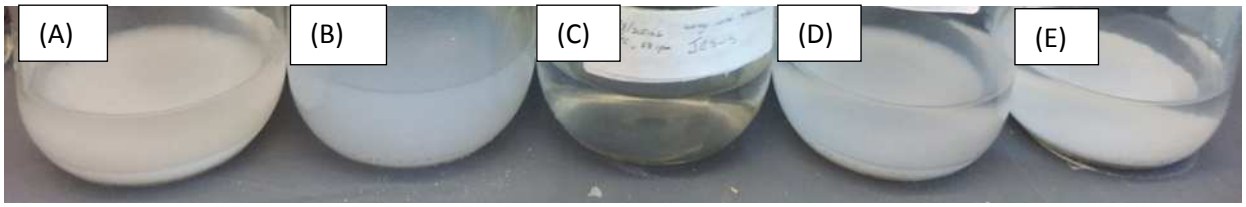

Figure S 1. Comparison between regular starches and industrially pregelatinized starches, gelatinized for 60 mins at 90°C.

A. Rice starch – starch granules do not gelatinize but settle down at the bottom
B. Potato starch- gelatinized, but forms a viscous semisolid material
C. Waxy maize starch-completely soluble and gelatinized, transparent and low viscosity liquid
D. Regular corn (maize) starch- granules do not gelatinize, settle down at the bottom
E. High amylose corn starch- granules do not gelatinize, settle down at the bottom

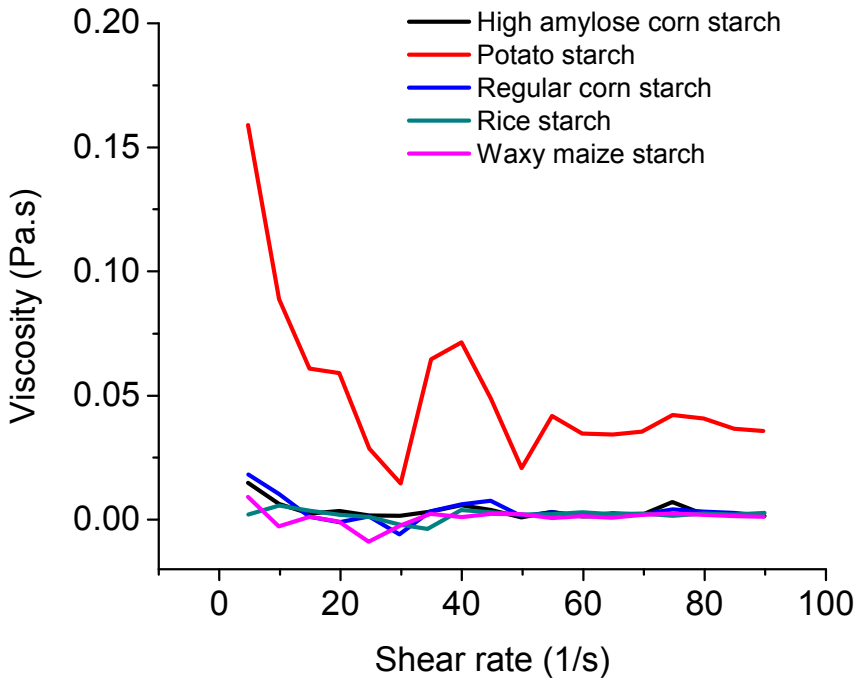

Figure S 2. Viscosity of gelatinized starches

Figure S 2. Indicates that potato starch after gelatinization becomes highly viscous. Gelatinized potato starch also has large chunks of semisolid gelatinized starch which account for the scatter in the viscosity plot. All the other starches, with the exception of waxy maize starch, are only partially gelatinized. The swollen granules settle down at the bottom. Waxy maize starch is completely gelatinized and solubilized, there are no granules. The solution is transparent, homogeneous and has low viscosity.

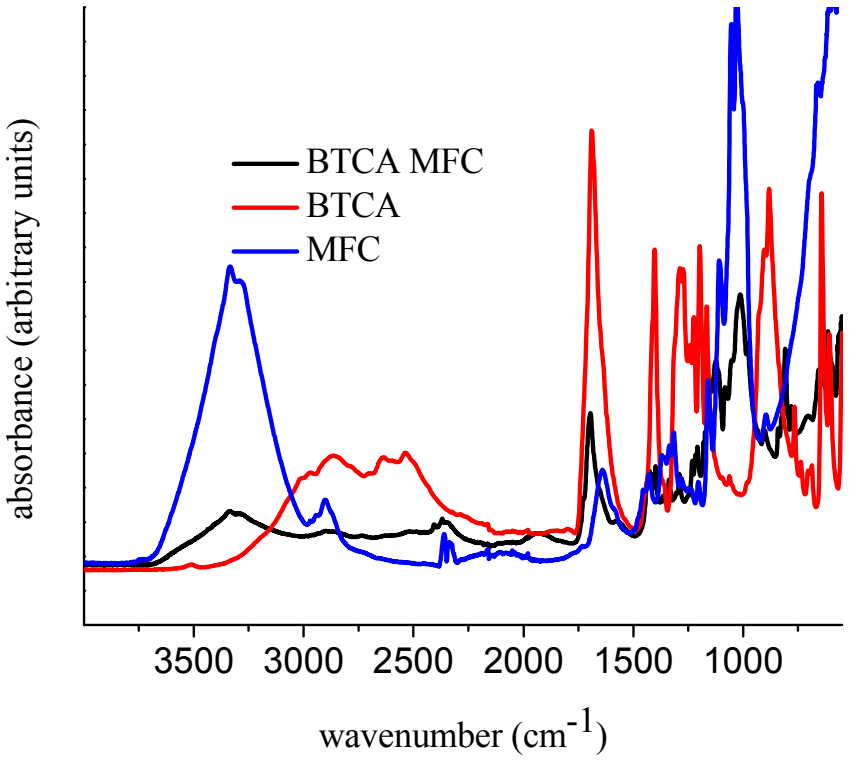

Figure S 3. ATR-FTIR of MFC, BTCA and BTCA MFC films.

Figure S 3 shows that in case of BTCA MFC film the peak shifts towards lower wavenumber compared to BTCA carboxyl carbonyl peak at ≈1690 cm^{-1}. This indicates H-bond formation instead of esterification reaction between BTCA and MFC. Esterification reactions shifts carbonyl peak to higher wavenumber (1725 cm^{-1})

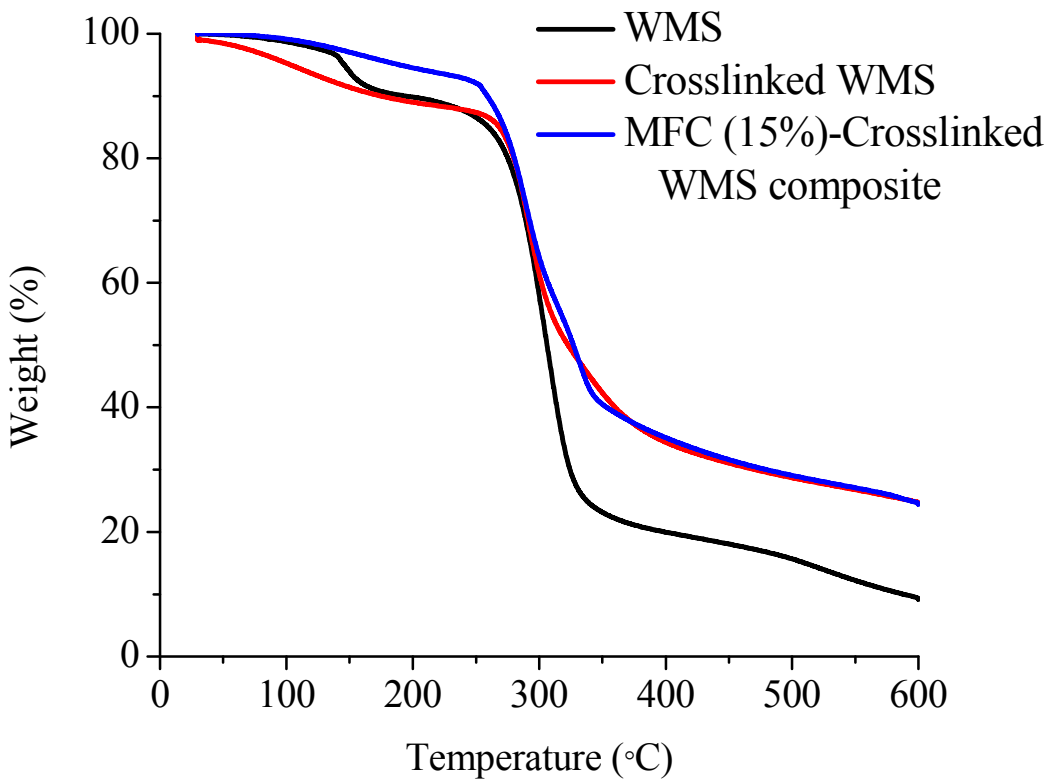

Figure S 4. TGA of WMS, crossslinked WMS and MFC(15%)-crosslinked WMS Composite.

Figure S 4 indicated no change in initial degradation temperature with crosslinking. However there is a decrease in the weight loss at 600°C with crosslinking.