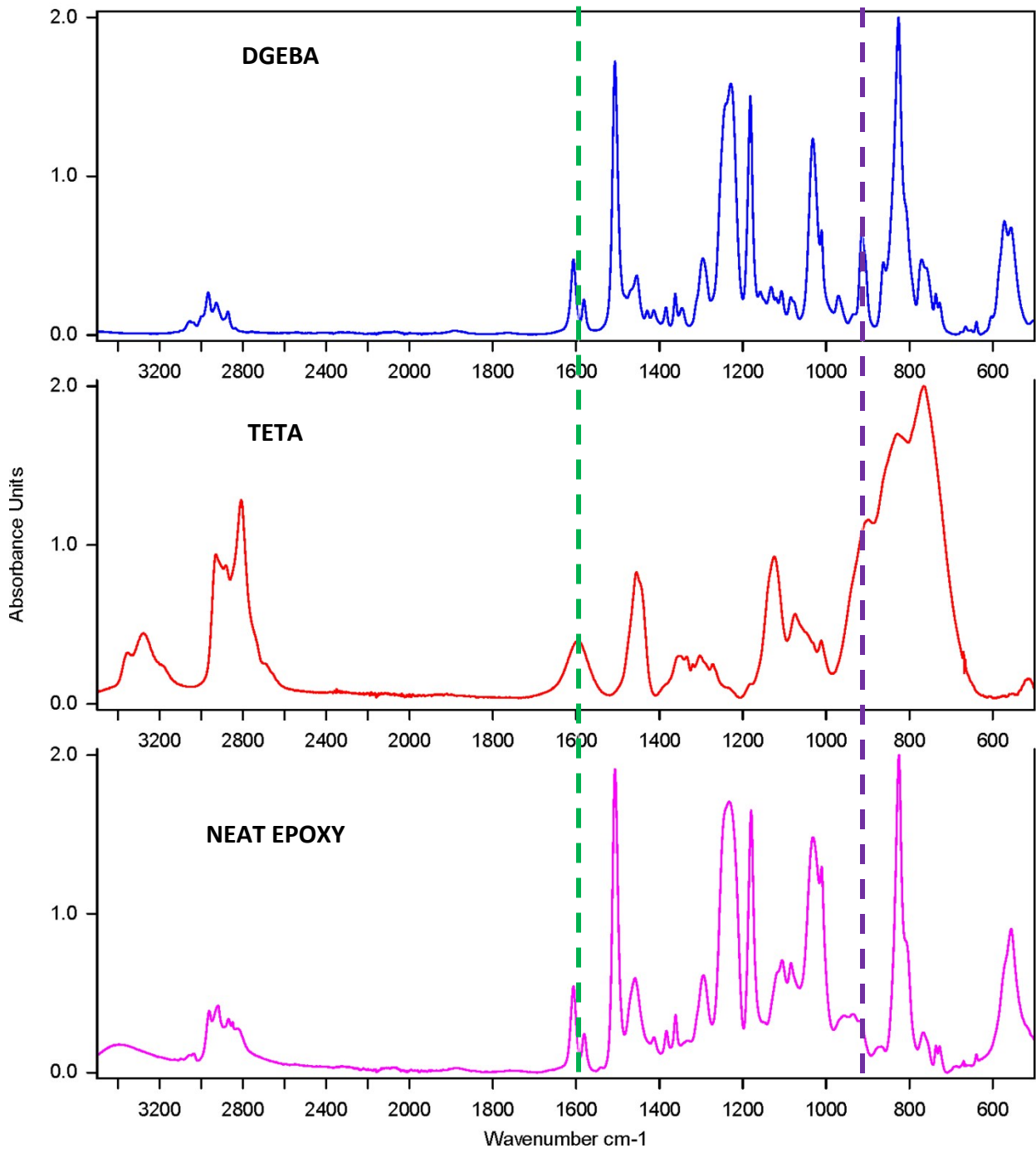


Chitin Nano-whiskers (CNWs) as a Bio-based Bio-degradable Reinforcement for Epoxy: Evaluation of the Impact of CNWs on the Morphological, Fracture, Mechanical, Dynamic Mechanical, and Thermal Characteristics of DGEBA Epoxy Resin

*Muhammad A.S. Anwer, Jintian Wang, Aaron Guan, Hani. E. Naguib**

SUPPLEMENTARY FILES

A)



B)

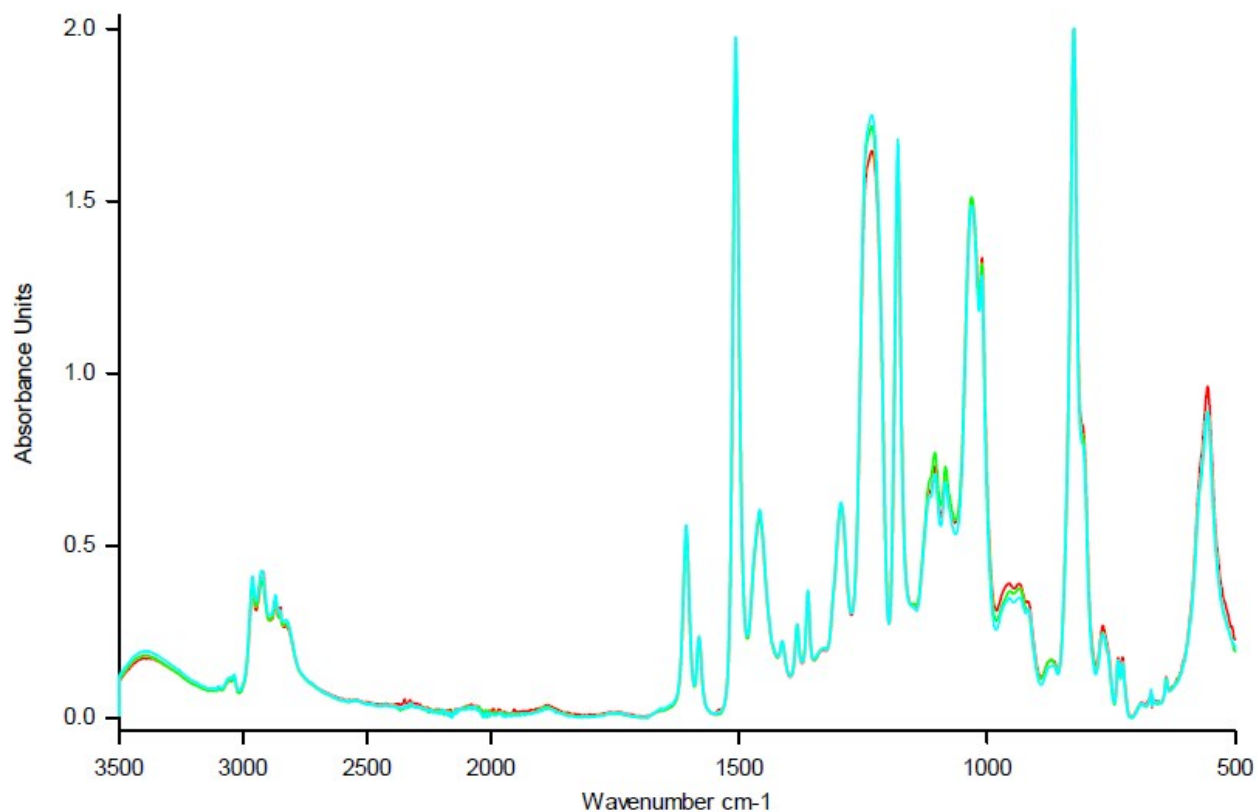


Fig. S1: A) Spectra of DGEBA, TETA, and NEAT EPOXY demonstrating absence of amine (1585 cm^{-1}) of TETA and Oxirane (915 cm^{-1}) of DGEBA in NEAT EPOXY (1). B) Comparison between spectra of neat epoxy (black), 0.25 wt% CNWs (red), 0.5 wt% CNWs (blue), 0.75 wt% CNWs (green). These spectra show no new peaks being formed and there does not seem to be any noticeable change in the oxirane or amine absorbance bands. This indicates that there is no excess curing agent under any curing condition. NOTE: All spectra in the above figure are averages of 200 scans at 4 different locations with baseline correction, atmospheric compensation and min-max normalization applied to each spectra. The samples used for obtaining the spectra of neat epoxy, 0.25wt% CNWs, 0.5wt% CNWs and 0.75wt% CNWs were the polished samples as shown in Fig. 3 of the manuscript.

REFERENCES:

1. Meure S, Wu D-Y, Furman SA. FTIR study of bonding between a thermoplastic healing agent and a mendable epoxy resin. *Vib Spectrosc.* 2010;52(1):10–5.