Electronic Supplementary Material (ESI) for New Journal of Chemistry. This journal is © The Royal Society of Chemistry and the Centre National de la Recherche Scientifique 2020

## Supporting information

## Hyperbranched polymer from tung oil modifying epoxy resin with simultaneous improvement in toughness and strength

Laihui Xiao<sup>a</sup>, Zengshe Liu<sup>c†</sup>, Nan Li<sup>d</sup>, Shuai Li<sup>a</sup>, Pan Fu<sup>a</sup>, Yigang Wang<sup>a</sup>, Jinrui Huang<sup>a,b</sup>, Jie Chen<sup>a</sup> and Xiaoan Nie<sup>a</sup>\*

<sup>a</sup>Key Laboratory of Biomass Energy and Material, Jiangsu Province; Co-Innovation Center of Efficient Processing and Utilization of Forest Resources, Jiangsu Province; Key Laboratory of Chemical Engineering of Forest Products, National Forestry and Grassland Administration; National Engineering Laboratory for Biomass Chemical Utilization, Institute of Chemical Industry of Forest Products, Chinese Academy of Forestry, 16 Suojin Wucun, Nanjing 210042, Jiangsu Province, P.R. China

<sup>b</sup>Research Institute of Forestry New Technology, Chinese Academy of Forestry, Xiangshan Road, Beijing 100091, P.R. China

<sup>c</sup>USDA, ARS, National Center for Agricultural Utilization Research, Bio-Oils Research Unit, 1815 N University St, Peoria, IL, 61604, United States

<sup>d</sup>Institute of Advanced Synthesis, School of Chemistry and Molecular Engineering, Nanjing Tech University, Nanjing 211816, Jiangsu Province, P.R. China

\*Correspondence: <u>niexiaoan@126.com</u>; Tel.: +86-025-8548-2528

<sup>†</sup>Mention of trade names or commercial products in this publication is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture. USDA is an equal opportunity provider and employer.

## Summary of Content:

Number of pages: 7 Number of figures: 4 Number of tables: 1



Fig. S1. GPC spectrum of TOHBP.



Fig. S2. FTIR spectra from the curing samples of EP and EP-TOHBP10.



Fig. S3. Representative load-position curves of cured epoxy systems.



Fig. S4. Representative curing samples: (a) EP, (b) EP-TOHBP3, (c) EP-TOHBP5, and (d) EP-TOHBP10.

Sample	Impact strength (KJ m <sup>-2</sup> )	Tensile strength (MPa)	Young's modulus (MPa)	Elongation at break (%)
EP	$20.07 \pm 3.17$	67.97±0.32	2610±31	$6.78 \pm 0.52$
EP-TOHBP3	$30.86 \pm 6.33$	69.94±0.39	$2829 \pm 28$	$8.04 \pm 0.49$
EP-TOHBP5	62.79±5.86	$70.87 \pm 0.88$	$2891 \pm 31$	$6.41 \pm 1.30$
EP-TOHBP10	$58.89 \pm 1.44$	$73.01 \pm 0.85$	3116±19	$6.96 \pm 0.62$

Table S1. Mechanical properties of cured epoxy samples