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Functional Modification of *Borassus flabellifer* Sheath Fibres Using Isocyanate †

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Abstract: An active hydroxyl content of *Borassus flabellifer* leaf sheath fibers are measured by the isocyanate back titration method, catalytically reacted with 1, 6 – hexamethylene diisocyanate biuret trimer and 2, 4-toluene diisocyanate-trimethylolpropane adduct which is being used as cross-linkers in most of the automotive and industrial polyurethane coatings. The functional modifications of the fibers are confirmed by NCO titration method and Fourier-transform Infrared Spectroscopy (FTIR). The resultant biochemical fiber is analyzed for the thermal property, and surface topography measurement is done by Scanning Electron Microscope (SEM) and Thermogravimetric analysis (TGA), respectively. Moreover, 1, 6 – hexamethylene diisocyanate biuret trimer (HDT) treated BFSF having higher thermal stability due to higher urethane to urea content and intermolecular hydrogen bonding.

Keywords: polyurethane; thermal property; Thermogravimetric analysis; *Borassus flabellifer*; sheath fibers.

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Conflicts of Interest

The authors declare no conflict of interest.