

## **The conformation and thermal characteristic of different Species of bamboo cellulose**

### **ABSTRACT**

Bamboo is a fast-growing biomaterial indigenous to Asia and Oceania that is also a high-yielding renewable resource. Bamboo, which has mechanical properties similar to wood, may be treated with currently available methods. The purpose of this study was to determine the characteristics chemical and thermal characteristic of three bamboo species of *Schizostachyum brachycladum*, *Bambusa vulgaris*, and *Bambusa oldhamii*. Bamboo cellulose was extracted chemically via dewaxing, delignification, and mercerization. The bamboo cellulose species employed were *S. brachycladum*, *B. vulgaris*, and *B. oldhamii*. The bamboo celluloses were characterised using Fourier transform infrared spectroscopy (FT-IR) and thermogravimetric analysis (TGA). FT-IR and TGA studies confirmed the chemical treatment's removal of hemicellulose and lignin. The FT-IR measurement demonstrated an increase in the peak intensity at  $1020\text{ cm}^{-1}$ , which corresponds to the vibration of the C-O-C pyranose ring, showing that the yield of isolated cellulose increased following chemical treatment. In a TGA test, bamboo celluloses were found to be thermally stable