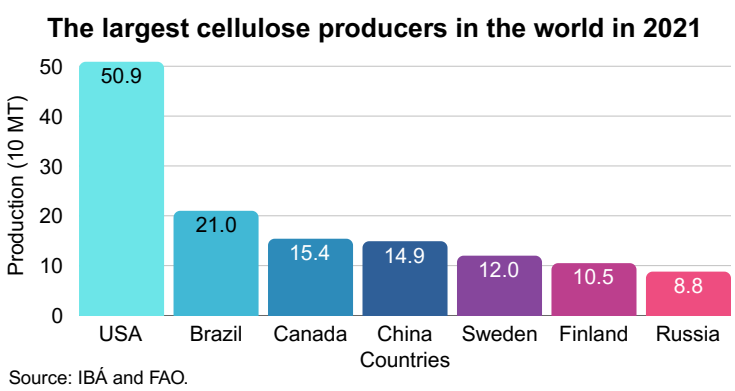
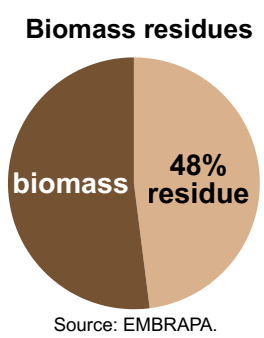
IOCM 2025 Conference
The 4th International Online Conference on Materials
03–05 November 2025 | Online
MDPI

Green Treatment and Thermal Characterization by TG/DTG of *Eucalyptus urograndis* Leaves

Kaylane Dias de Medeiros, Naienne da S. Santana, Michelle G. Mothé
Laboratory of Natural and Synthetic Polymer Technology, School of Chemistry, UFRJ
E-mail: kaylane.dm@eq.ufrj.br , naienne.santana@gmail.com , michelle@eq.ufrj.br

INTRODUCTION & AIM





The aim of the present work is to investigate the optimal conditions in the delignification process for extracting cellulose from eucalyptus tree residues to obtain films for application in sustainable packaging.

METHODS

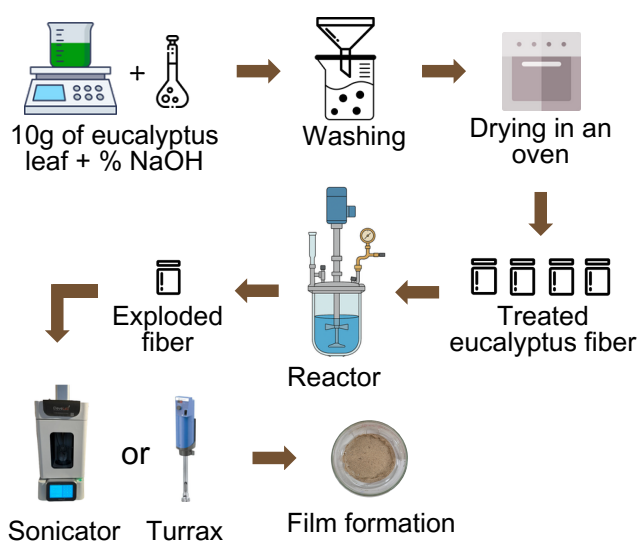


Fig 1: Illustration of the methodology.

Table 1: Sample identification.

Samples	
Acronym	Identification
FB	Reference leaf
A2	Treated fibers
RT-A2	Treated fibers + reactor + turrax
RS-A2	Treated fibers + reactor + sonicator

Thermal Analysis

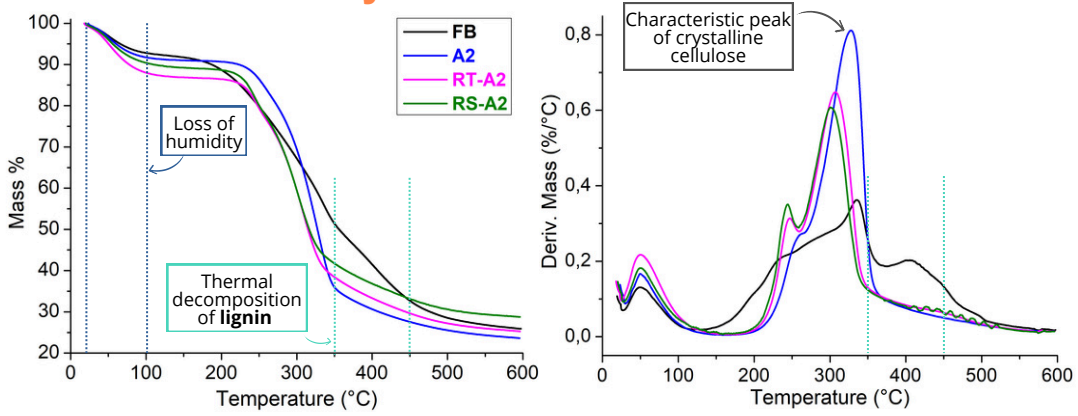


Fig 2: TG/DTG of eucalyptus fiber samples.

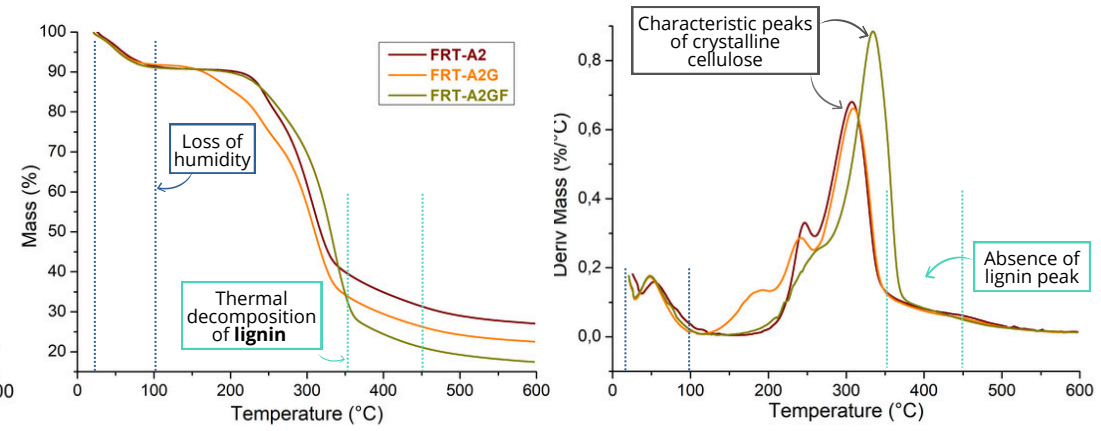


Fig 3: TG/DTG of films.

Physical properties

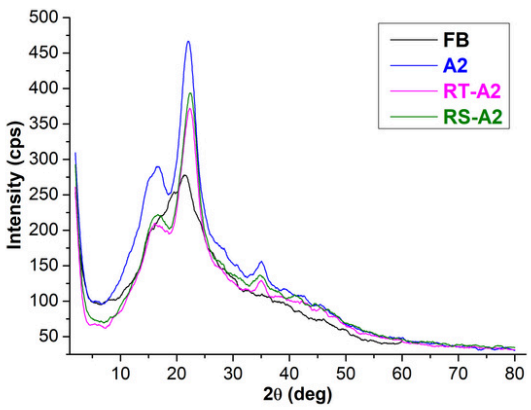


Fig 4: XRD analysis of fiber samples.

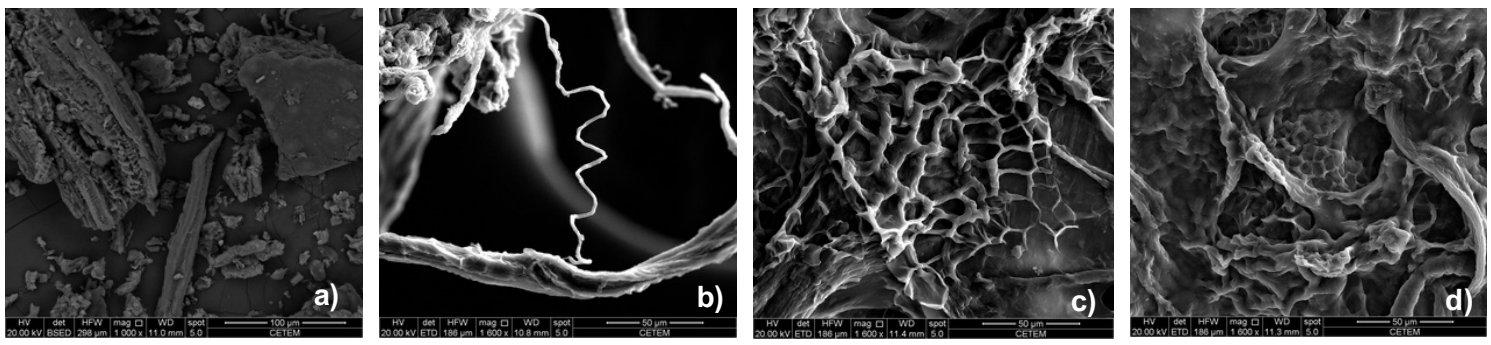


Fig 5: Micrographs of the natural fibers **FB** (a), **RT-A2** (b), film **RT-A2** (c) and film **RT-A2** with glycerol (d)

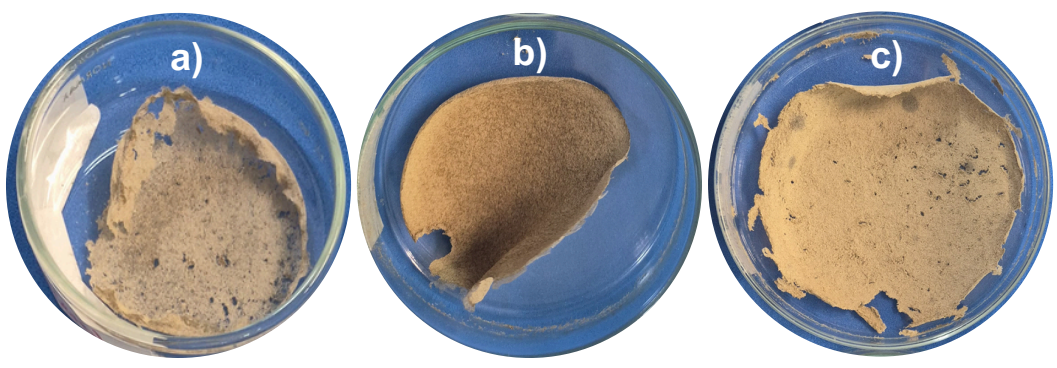


Fig 6: Films with samples **RT-A2** (a) and **RT-A2** with glycerol (b, c).

To conclude, the conditions of the delignification process in this study were efficient to obtain cellulose films for possible industrial applications in biodegradable packaging.

ACKNOWLEDGMENTS

CAPES
FAPERJ Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro
CNPq Conselho Nacional de Desenvolvimento Científico e Tecnológico