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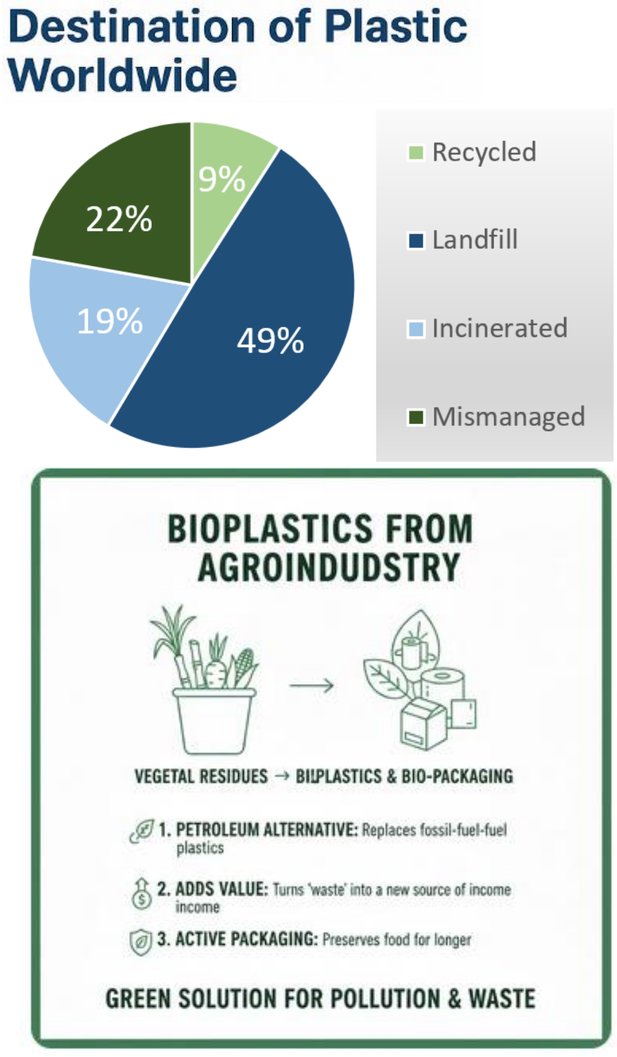
Characterization of Biodegradable Films from Holocellulose from Natural Polymers via Electrospinning

Tadeu Floriao Lahora, Michelle Gonçalves Mothé, Jaqueline Souza de Freitas, Marcos Lopes Dias

Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.

INTRODUCTION

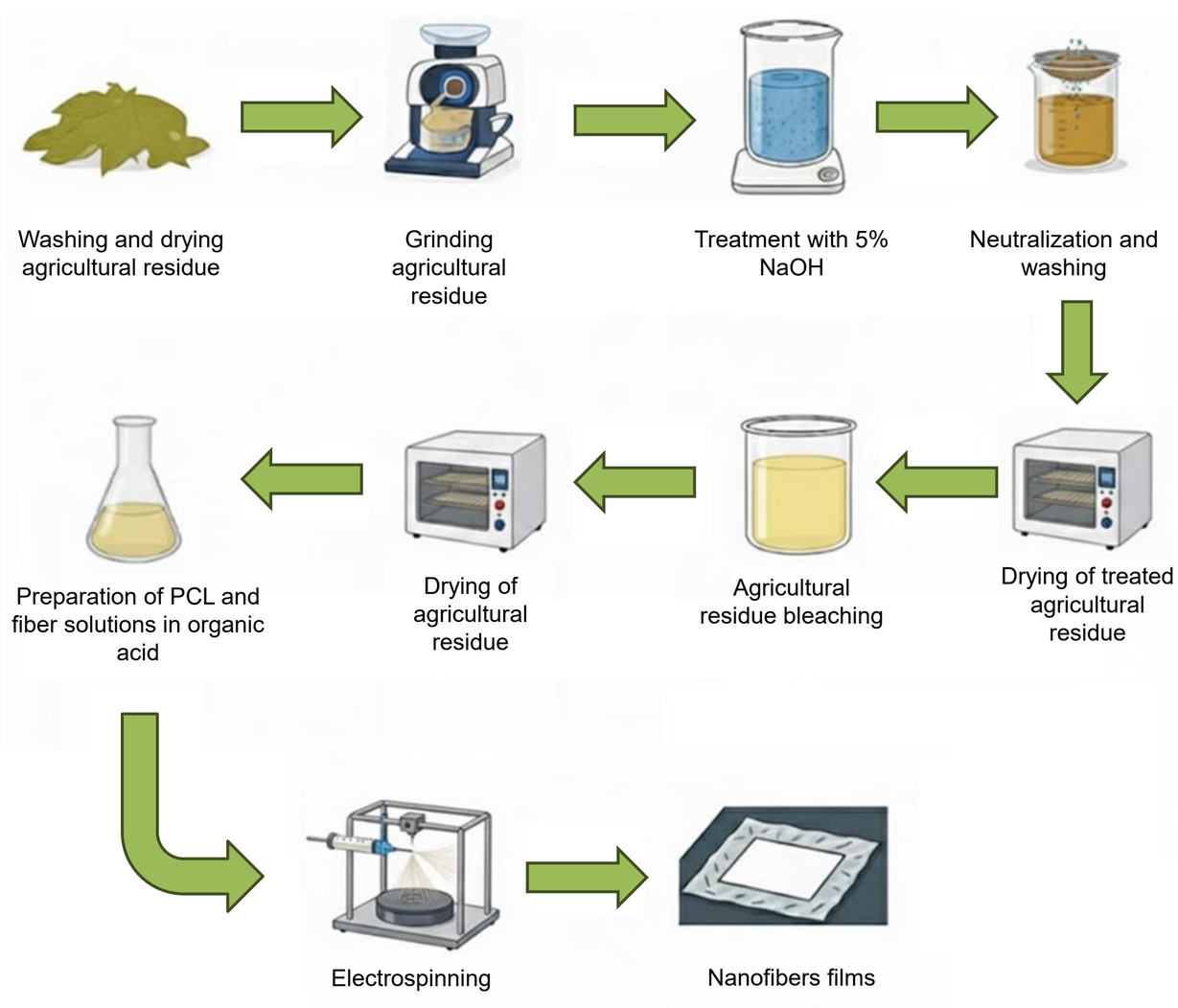
Source: ABIHPEC and WWF, 2024.



OBJECTIVE

The objective of this work is to obtain and characterize polycaprolactone (PCL) and agricultural residue fiber films produced by electrospinning, focusing on their morphology, thermal stability, and fiber treatment process for polymer incorporation.

METHOD



RESULTS & DISCUSSION

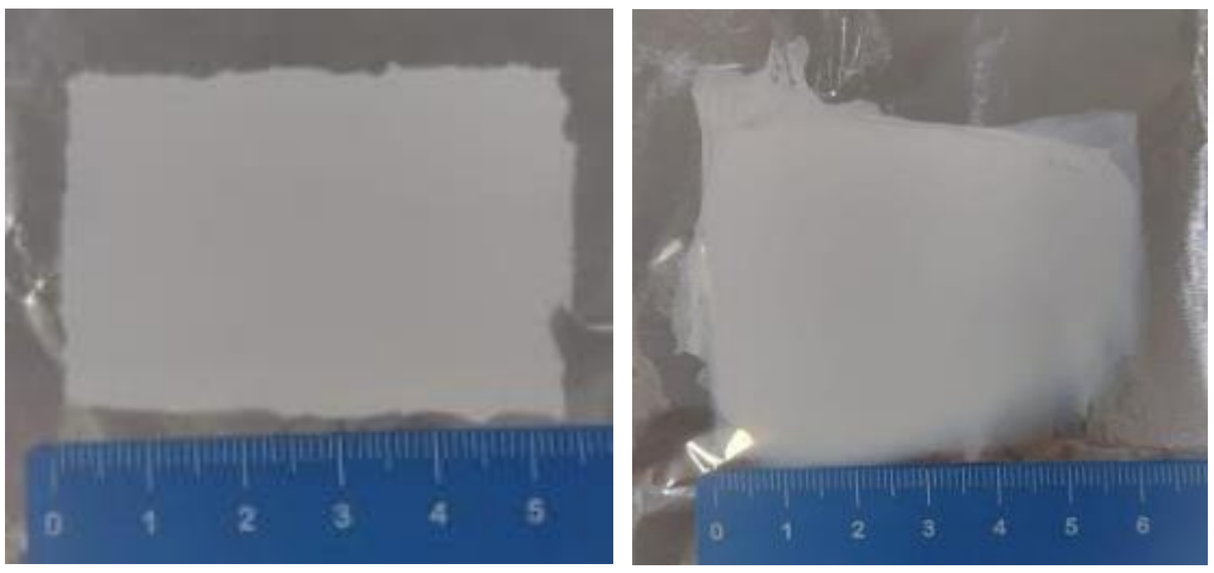


Fig. 1 – Nanofibers films obtained by electrospinning for PCL plain and PCL with 20% m/m agricultural residue samples.

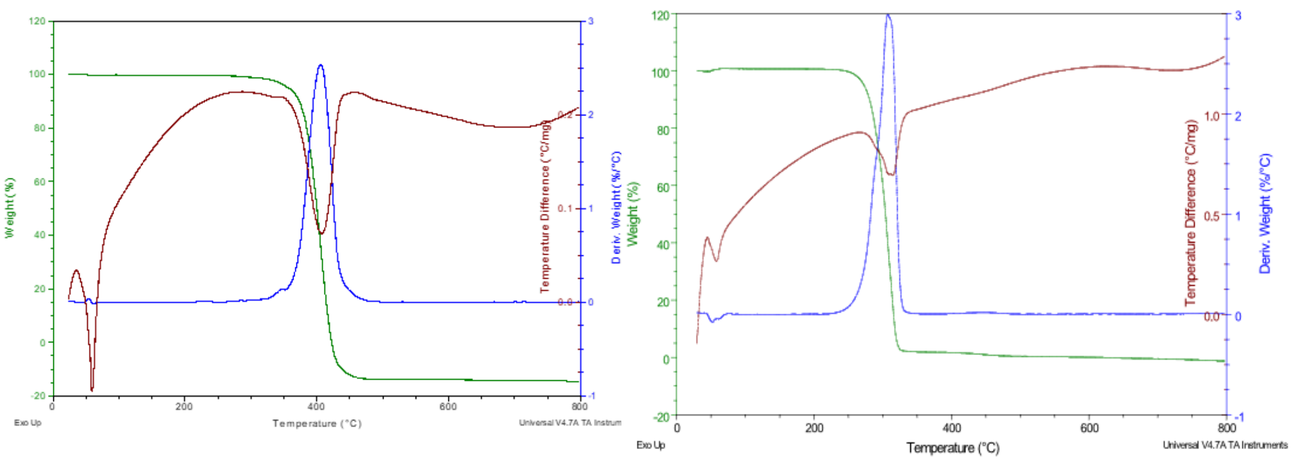


Fig. 2 – TG/DTG and DTA curves of film samples PCL plain and PCL with 20% m/m agricultural residue.

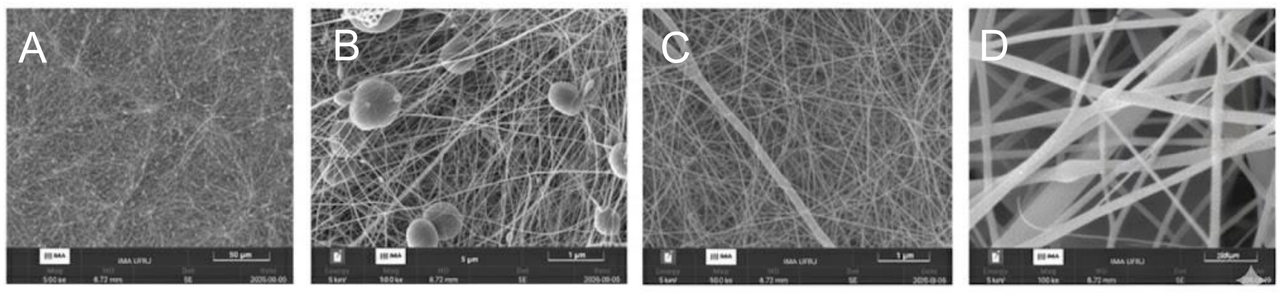


Fig. 3 – SEM images for PCL plain sample at 1000 (A), 10000 (B), 50000 (C) and 100000x (D) magnifications

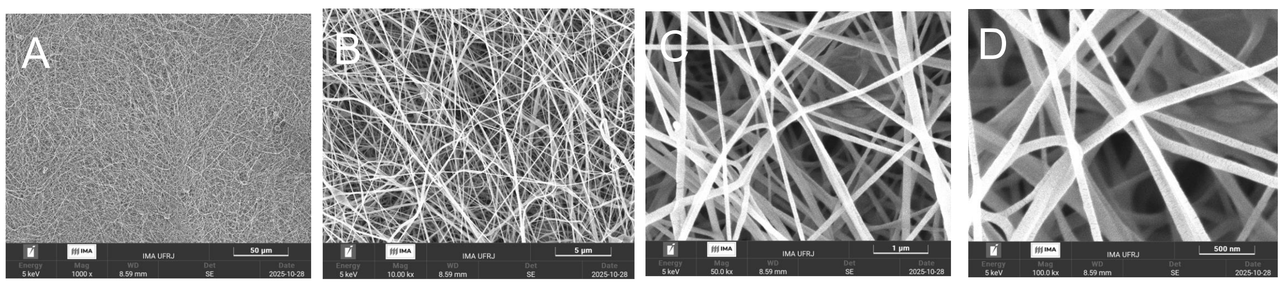


Fig. 4 – SEM images for PCL with 20% m/m agricultural residue sample at 1000 (A), 10000 (B), 50000 (C) and 100000x (D) magnifications

CONCLUSION

Electrospinning proved to be an efficient technique for producing nanometric-scale films. Characterization analyses confirmed successful fiber formation, thermal stability, and complete solvent evaporation during processing, validating the films as a promising alternative for packaging applications.

ACKNOWLEDGMENTS

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