

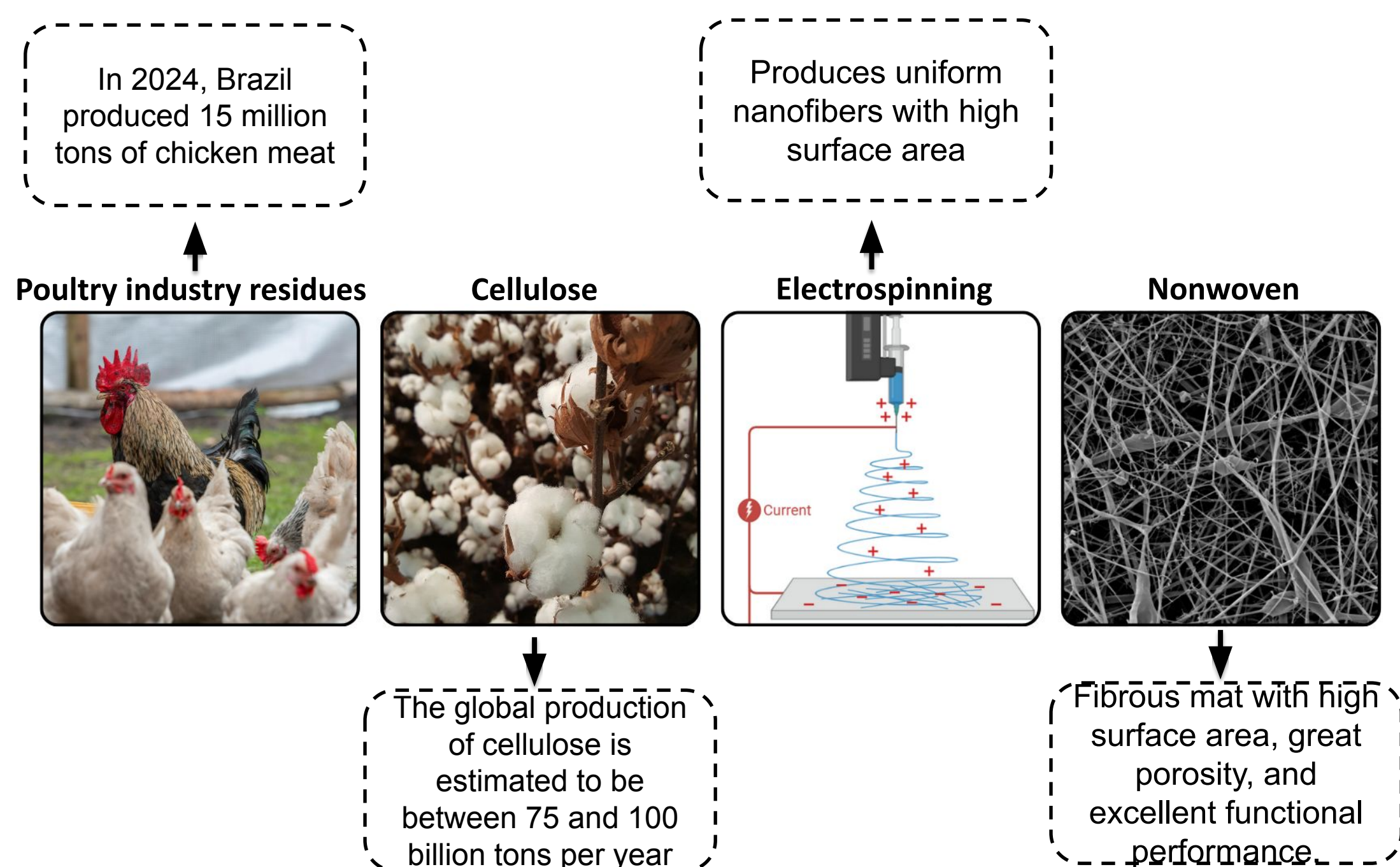
Study, Production, and Characterization of Nanostructured Nonwoven by Electrospinning from Modified Natural Biopolymers

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INTRODUCTION & AIM



OBJECTIVE

To study the development and characterization of a nonwoven material composed of nanofibers obtained by electrospinning from a combination of modified natural biopolymers derived from cellulose and poultry industry residues.

METHOD

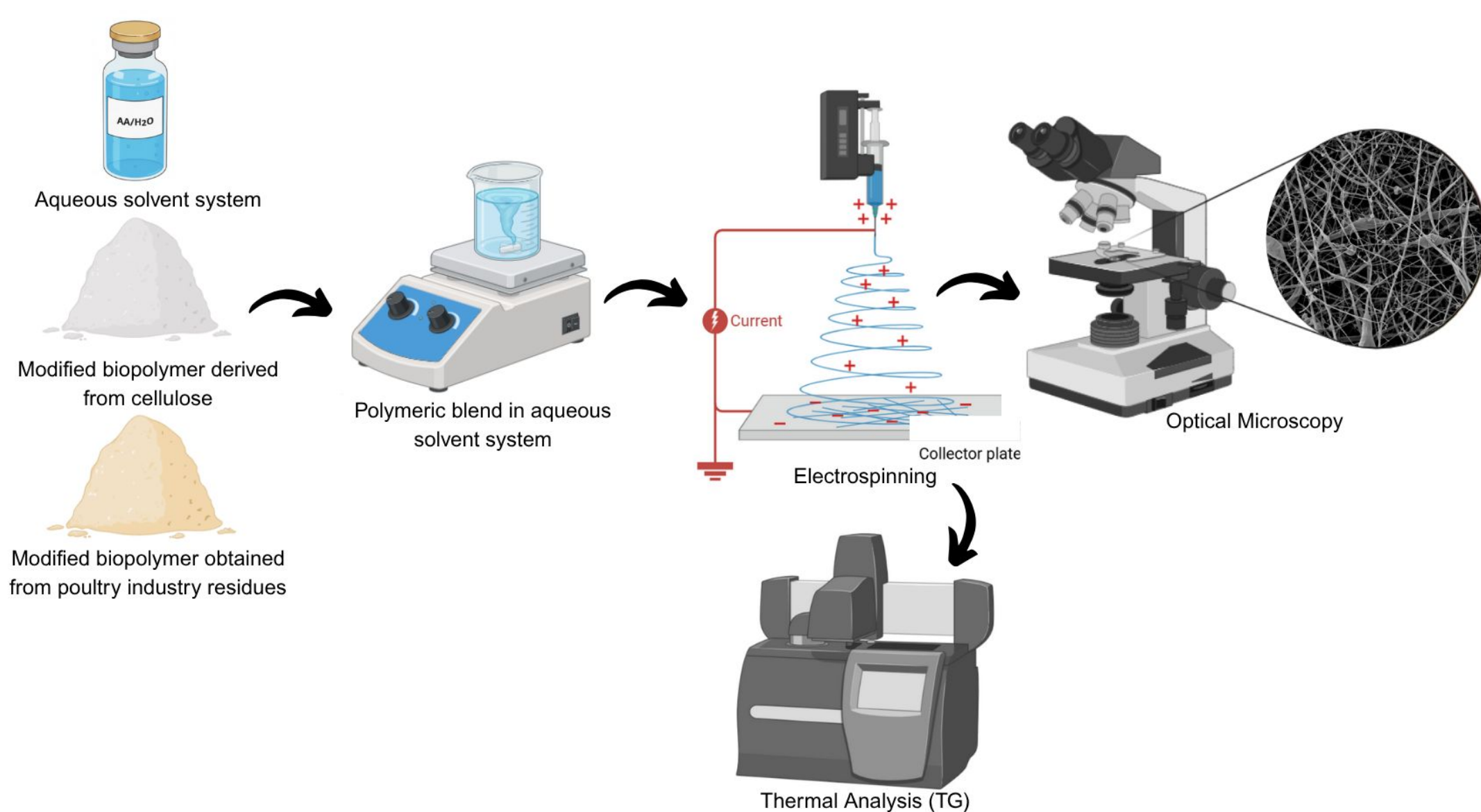


Figure. Schematic representation of the electrospun nonwoven fabrication process from modified natural biopolymers derived from cellulose and poultry industry residues.

Thermal Analysis (TG)

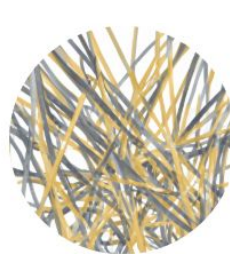
- Equipment: STD Q600, TA Instruments
- Temperature range: 25–600 °C
- Heating rate: 10 °C/min
- Atmosphere: Nitrogen, 100 mL/min flow



Modified biopolymer derived from cellulose



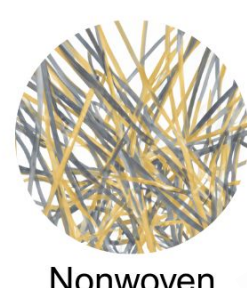
Modified biopolymer obtained from poultry industry residues



Nonwoven

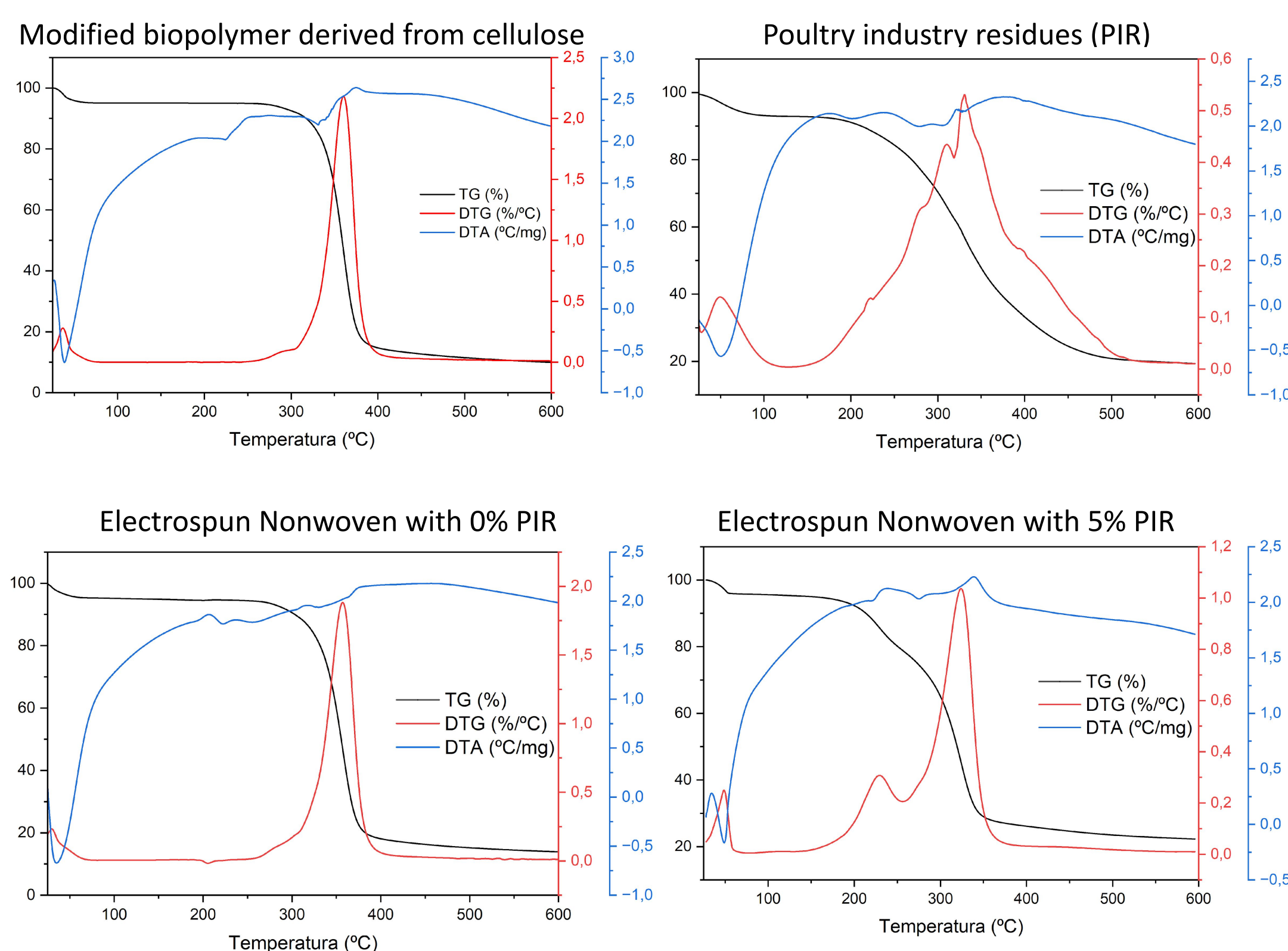
Scanning Electron Microscopy (SEM)

- Magnification: 10,000×
- Acceleration voltage: 10 kV
- Scan time: 30 μs

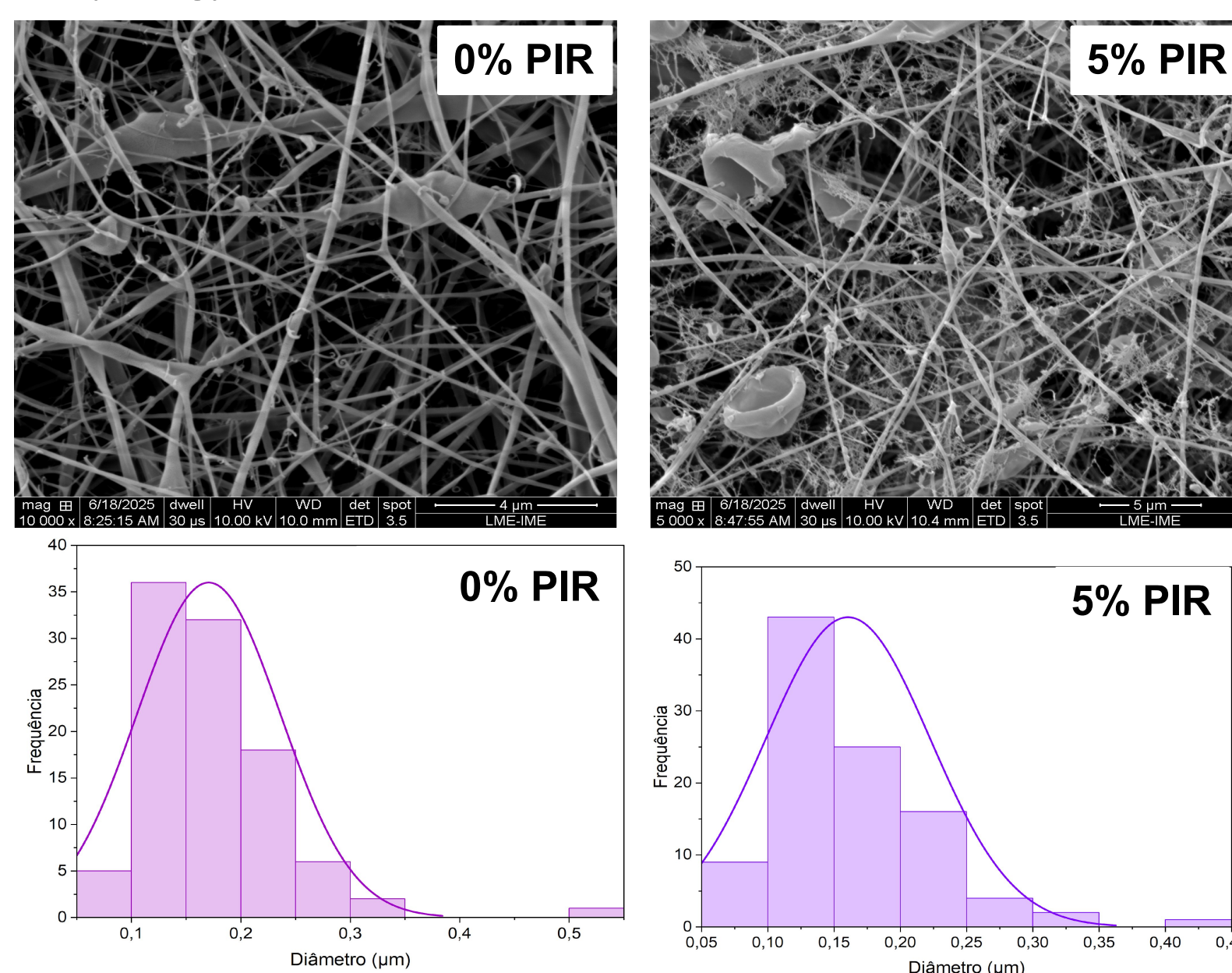


Nonwoven

RESULTS & DISCUSSION



Morphology (SEM)



CONCLUSION

The modified biopolymer derived from cellulose and the biopolymer obtained from poultry industry residues (PIR) biocomposite proved to be a promising combination for the production of nanostructured nonwovens, with SEM and thermal analyses confirming its excellent morphology and high stability.

ACKNOWLEDGMENTS

