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## Effect of electrohydrodynamic technique as a complementary process for cellulose extraction from bagasse: Crystalline to amorphous transition

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### Highlights:

- Cellulose was extracted from sugarcane bagasse using electrohydrodynamic (EHD).
- Effect of EHD on chemical, structural and morphological properties of cellulose was evaluated.
- EHD-treated fibers hold the higher cellulose content which mainly showed amorphous structure.
- High proportion of amorphous structure caused early onset of thermal decomposition.

### Abstract

Electrohydrodynamic technique (EHD) has lately received considerable attention as an important non-thermal method used for food processing. In this work the effect of EHD on physicochemical properties of cellulose extracted from bagasse was investigated. A three-step process was chosen to extract cellulose fibers, which was performed under a high voltage electric field at the beginning of each step. The cellulose fibers were then characterized using Scanning Electron Microscopy (SEM), Fourier Transform Infrared Spectroscopy (FTIR), X-ray Diffraction (XRD), and Thermogravimetric Analysis (TGA). The morphological evaluation revealed that the

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