

## عنوان مقاله:

Green synthesis of nanocellulose fibers from ragi stalk and its characterization

## محل انتشار:

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## خلاصه مقاله:

Nanocellulose derived from natural substances offers a plethora of opportunities to produce superior material properties for various applications. In the present study, nanocellulose was extracted from Ragi Stalk (Eleusine Coracana) an abundantly available agricultural biomass. The cellulose was alkali-treated followed by bleaching to remove hemicellulose, Pectins, wax, and lignin. Green solvent i.e. ionic liquid (1-butyl-3-methylimidazolium chloride ([Bmim]Cl)) was used to synthesize the nanocellulose through sonication and centrifugation. The FT-IR spectra reveal the functional groups and substantial conversion of cellulose to nanocellulose. The crystallinity of synthesized nanocellulose is illustrated by XRD. The surface architecture and the obtained nanocellulose size are represented by SEM and TEM monographs. The new finding is that the TEM images show the synthesized nanocellulose fibres have a smaller dimension between ۱۴.۵۸ and ۲۲.۱۷ nm evidenced through sonication. The thermal stability of the obtained nanocellulose was evidenced by using TGA/DTA. The thermal studies record that synthesized nanocellulose fibres shows phenomenal thermal stability up to ۴۶۰ °C.

## کلمات کلیدی:

Ragi Stalk, Green solvent, Ionic Liquid, Cellulose, Nanocellulose

## لینک ثابت مقاله در پایگاه سیویلیکا:

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