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## Extraction and Characterization of Cellulose Single Fibers from Native African Napier Grass

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### **Research Highlights**

- For the first time, CSFs was extracted from native African NGFs
- Extracted CSFs had higher  $\alpha$ -cellulose content than the pristine NGFs
- The extracted CSFs exhibit enhanced crystallinity and thermal stability
- The extracted CSFs may be suitable for various industrial applications

### **Abstract**

With increasing awareness of protecting the environment, the demand for renewable and environmental materials is increasing. In this work, the cellulose single fibers (CSFs) were extracted from the African native Napier grass fibers (NGFs) by chemical process. NGFs and CSFs were characterized for their chemical composition, structure, morphology, crystallinity and thermal properties using, chemical analysis, FTIR, <sup>13</sup>C CP/MAS NMR, SEM, XRD and TGA techniques. The resulted CSFs had higher  $\alpha$ -cellulose content, crystallinity and thermal

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