

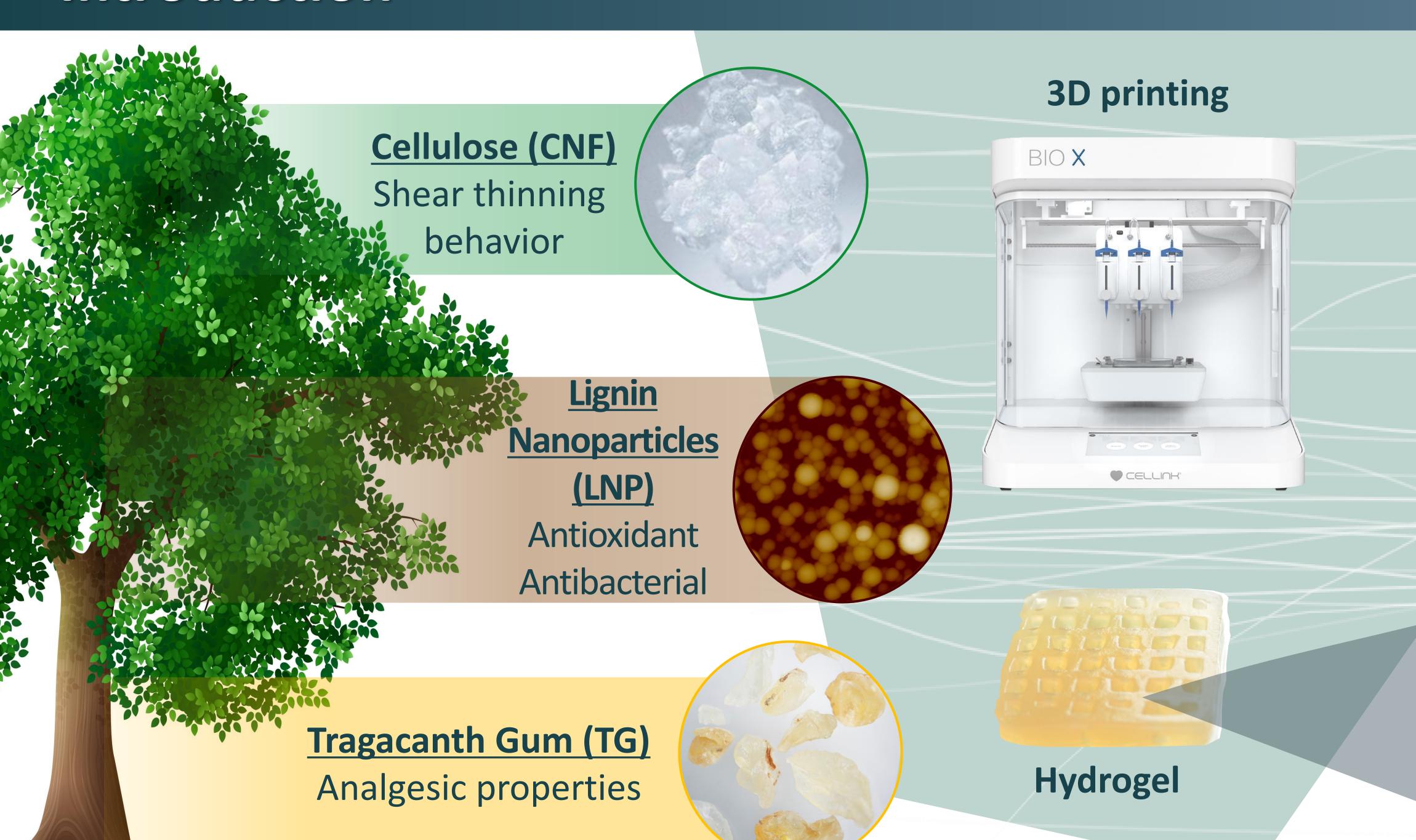
# 3D printing and properties of cellulose nanofibrils hydrogels reinforced with tragacanth gum



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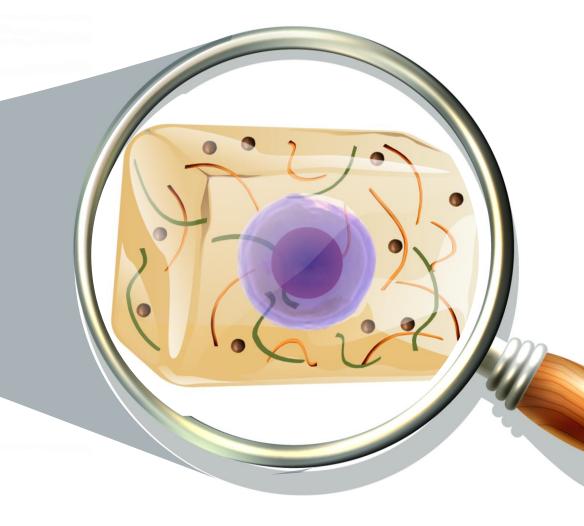
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#### Introduction



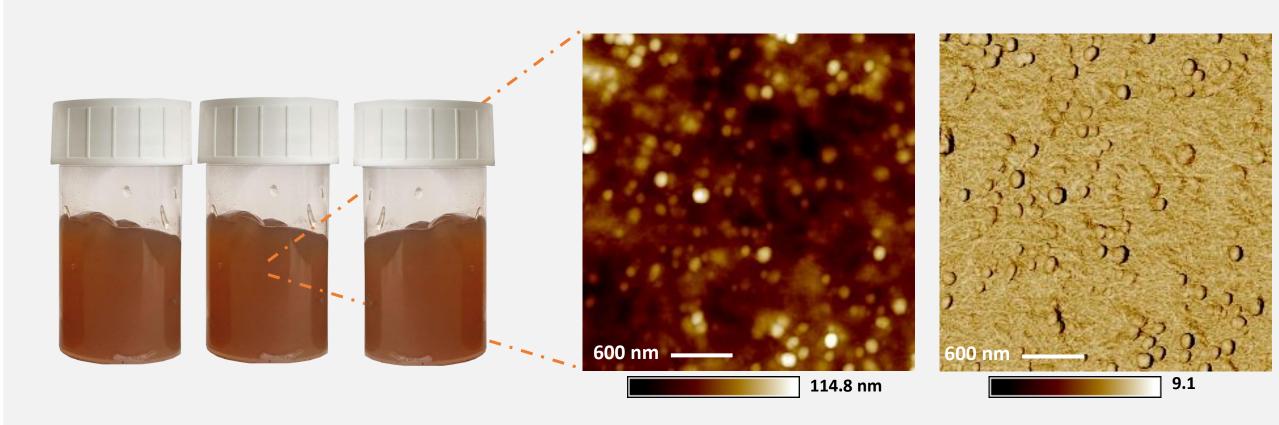
#### **Objectives:**

- To develop 3D printable
   CNF-based hydrogels
- To tune hydrogel
   properties with TG and LNP
- To explore application of these biomaterials in tissue engineering scaffolds

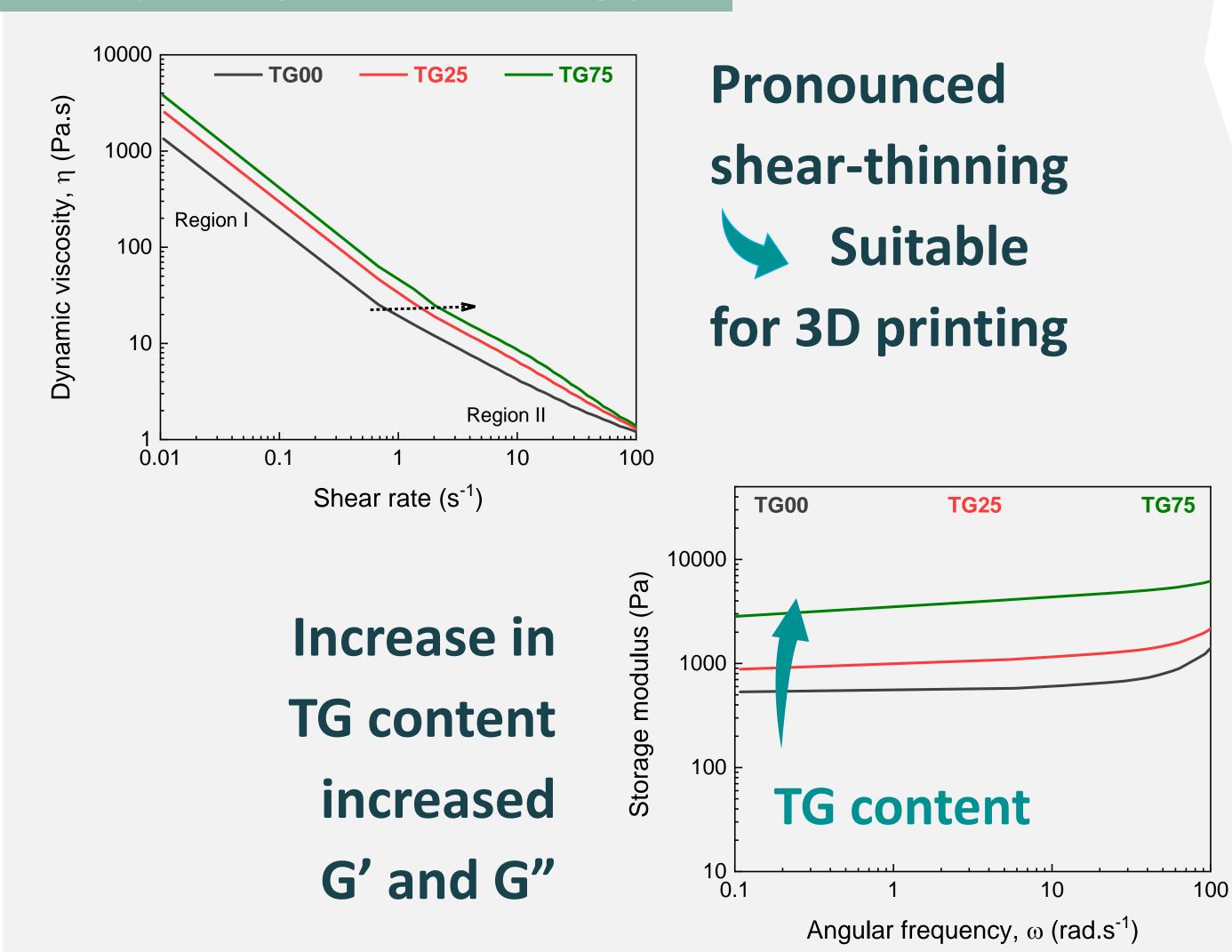


## **Experimental and Results**

## Hydrogel Preparation and Microstructure



## Hydrogel Rheology

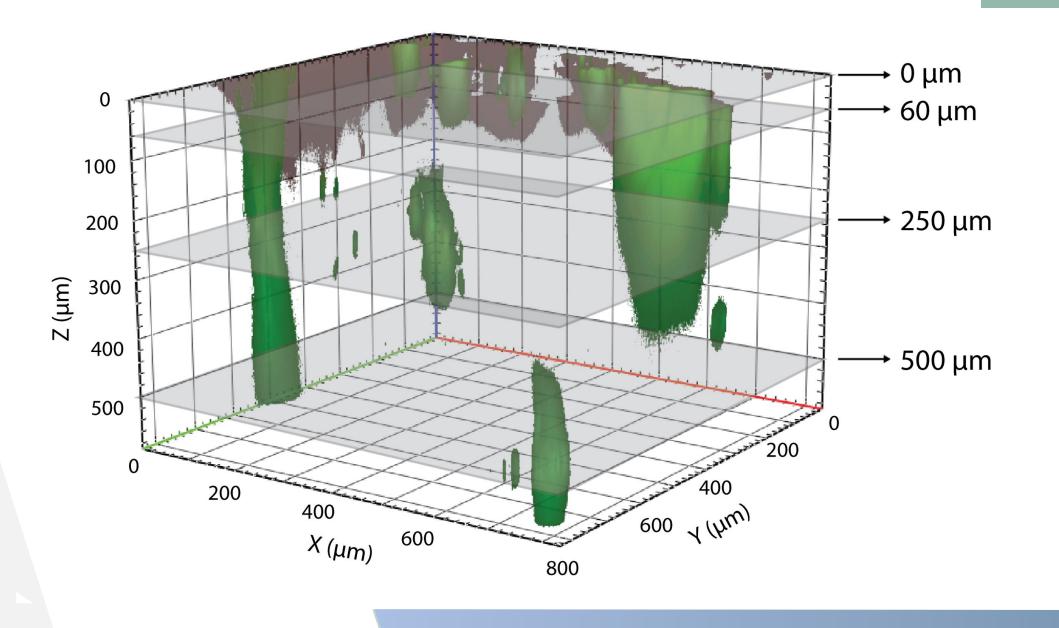


## Hydrogel Swelling T

**TG75** 

Swelling increased when TG content increased

## Cell Viability



**TG25** 

Swelling (wt%)

TG00

- No toxicity
- Proliferation of cells within the hydrogel

### Conclusions

 Potential application of plantbased materials in tissue engineering