PRACTICE ABSTRACT nº 56

Author: Rashid Suleiman and Susan Nchimbi Msolla – *Sokoine University of Agriculture*

Bio-based packaging: pineapple peels nanocellulose-based film

A bio-based material from local agricultural waste such as **pineapple peels (PPs)** **(a)** was developed as a sustainable packaging solution.

- The **PPs cellulose** was isolated by a **chemical method** and **nanocellulose (PPnc)** was obtained by an **acid hydrolysis method**.
- The bio-based material was produced using **PPnc**, **gellan gum** and **glycerol** to produce a film by a ***casting process***.

Examples of application:

b)

c)

Operative procedure protocol to produce the **bio-based nanocomposite film(b)**:

1) prepare **2% (w/w) of gellan gum** solution containing **12% of PPnc** (gellan gum, w/w) using distilled water as a solvent

2) add **glycerol** (30% of gellan gum, w/w) as a plasticizer to the solution

3) after complete dissolution and dispersion, sonicate the mixed solutions for 10 min

4) cast the solution on clean glass plate

5) dry the filled glass plates at room temperature (~25 °C).

- The film was used for the packaging of extruded and non-extruded **composite flours** **(c)** in combination with a secondary packaging.

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