

PRACTICE ABSTRACT n° 55

Author: Michael Wandayi Okoth
and Isaac Muuo Maitha – *University of Nairobi*

Bio-based packaging: cassava starch- and coconut oil-based film

- A bio-based material from local agricultural raw material such as **cassava tuber** (*Manihot esculenta*) **(a)** in combination with local **coconut oil** was developed as a sustainable food packaging solution.
- The **cassava starch** **(b)** was extracted following a **wet process**, while the local **coconut oil** was purchased.
- The bio-based film was obtained by **casting method** **(d)**.

Examples of application:



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

- 1)** add **cassava starch** (4%) **(b)**, **coconut oil** (0.5%) and **glycerol** (0.5%) in distilled water **(c)**.
 - 2)** stir the mixed solution for 1 h in a water bath at 90 °C
 - 3)** cast the viscous solution obtained into plastic Petri dishes **(d)**
 - 4)** dry the solution in an oven under circulating air at 35 °C for 12 h.
- The bio-based film was used for the packaging of local dry foods such as: **tree tomato fruit (tamarillo) powder** **(e)** and snack made with **quinoa and wheat flours (mandazi)** **(f)**.

