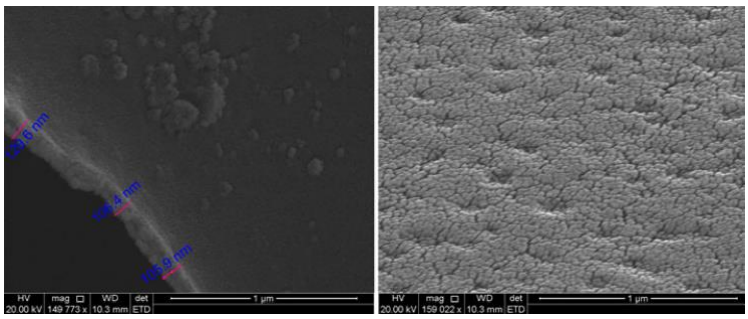
CHIMIE

Liquid-tight and gas-permeable chitosan-based membrane

Rearing pests or parasites of very small size in the absence of their living host is a challenge. Efficient in vitro devices are needed. Due to versatile function panel, such device may be used for wider applications.

DESCRIPTION*

- A membrane made of thin chitosan film (<130nm):
  - Supported on paper sheet
  - Suitable for thin coating (<200nm) with hydrophobic compounds such as honeybee wax, polystyrene or Paraplast
  - Having a total thickness of less than 1µM
  - Storable for 1 month
- Functionalities including:
  - Gas-permeability: diffusion of volatile compounds throughout the membrane (such as attractive kairomones)
  - Liquid-impermeability even on recurrent perforation: maintains outer surface dry (mandatory for mites breeding) while keeping sterile a liquid under the inner surface
- Successfully tested for breeding of varroa (Exp. Appl. Acarol. (2013), 61, 107-118)



Cross section (left) and top view (right) of a chitosan membrane coated with honeybee wax.

COMPETITIVE ADVANTAGES

- Thin but resistant surface
- Simultaneously permeable to gaz and impermeable to liquids
- Biomimetic structure of honeybee cuticle

APPLICATIONS

- Feeding of arthropods, parasites and pests, especially with small perforating apparatus (varroa, etc.)

INTELLECTUAL PROPERTY

- Patent in force

DEVELOPMENT STAGE

- Technology validated at lab level

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LABORATORY

- Team VACBIO
  « Venoms and biological activities »

CENTRE UNIVERSITAIRE JEAN-FRANÇOIS CHAMPOLLION
Albi · Castres · Rodez
www.univ-jfc.fr

CONTACT

T. +33 (0)5 62 25 50 60
greentech@toulouse-tech-transfer.com
www.toulouse-tech-transfer.com

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