



# **SargScreen :** **International collaboration in research of the medicinal potentialities of the Caribbean Sargasso**

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# Introduction

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▶ **+350 species of Sargasso in the world**

▶ **Great pharmaceuticals potentials**

**Yende., et al 2014 « Therapeutic potential and health benefits of Sargassum species »**

-Biologically active compounds:

tannins, terpenoids, flavonoids, sterols, sulfated polysaccharides, polyphenols, sargaquinoic acids, sargachromenol, pheophytin etc.

-Pharmacological activities:

analgesic, anti-inflammatory, antioxidant, neuroprotective, antimicrobial, fibrinolytic, immunomodulatory, anticoagulant, hepatoprotective, etc.

# The consortium

Collaboration between biologists and chemists :

- ▶ Association for Research on the Valorization of Natural Resources of Martinique (A.R.VA.R.NA.M)
- ▶ Association for Research in Epidemiology and Biodiversity (AREBio)-MARTINIQUE
- ▶ Institute of Chemistry of Nice - FRANCE



# Aims and objectives

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## ▶ **Aim**

To detect pharmacological potentials of Sargassum extracts against pathologies spread over the Caribbean.

## ▶ **Objectives**

Use cellular models of the pathologies of interest to do a pharmacological screening to identify active ingredients against the pathologies.

Rely therapeutical activities detected to molecular modifications.

# Management of the project

- ▶ **WP n°1- Location, collection, decomposing of fished Sargasso and Voucher specimens**

**Partner : Ecole de Formation Professionnelle Maritime et Aquacole (E.F.P.M.A)**

**(Maritime and Aquaculture Vocational Training School)**

→ Oceanography and meteorology to predict pelagic Sargasso mats locations

→ Sargassum collection off the Martinican coasts, in seawaters not contaminated by Chlordecone ( according to the official maps)

**Partner : Office National des Forêts (ONF)**

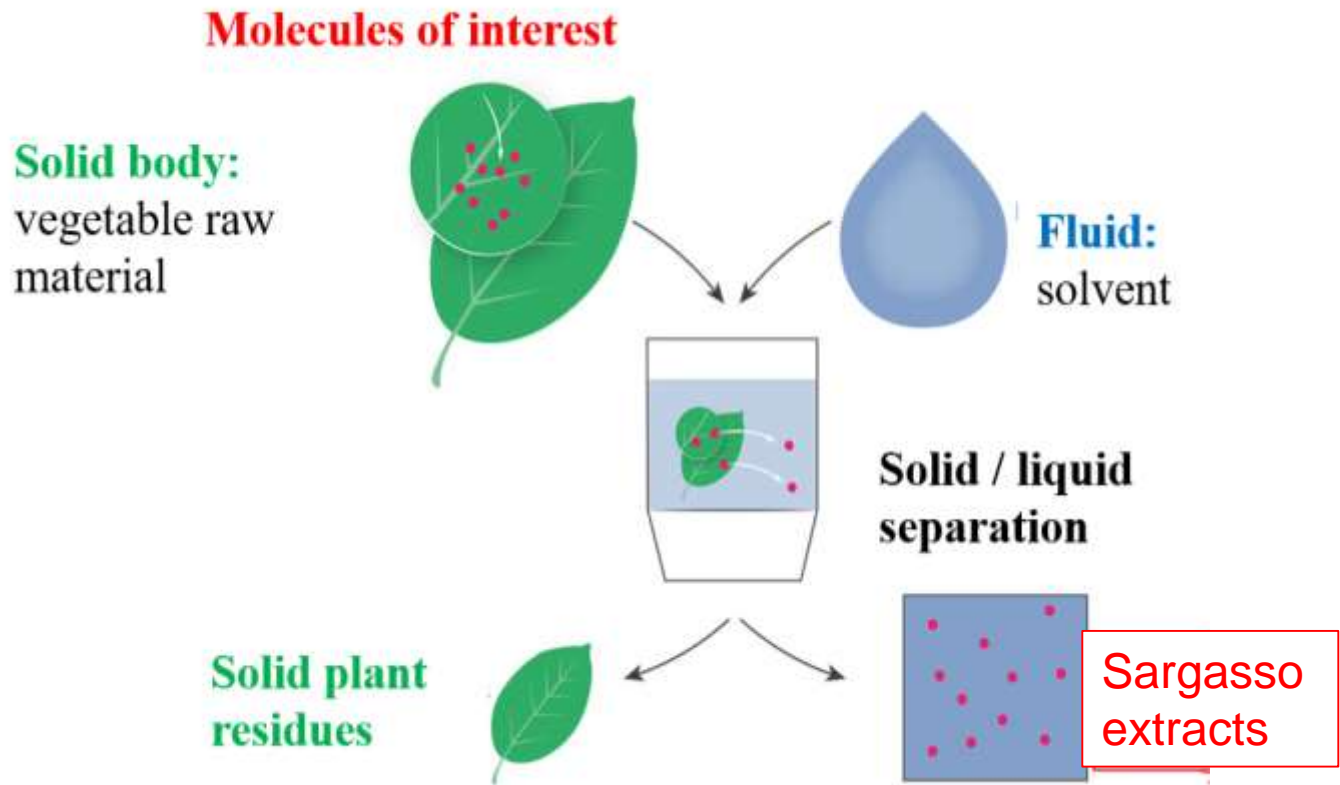
**(National Forest Office)**

→ Taxonomic identification



# Management of the project

## ▶ WP n°2 : Extractions



# Management of the project

## ▶ WP n°2 : Extractions

**Partner : Pôle Agroressources et de Recherche de Martinique (PARM)**  
**(Agroresources and Research Center of Martinique )**



- Optimisation of extractions
- Lyophilization : stock



**Partner : Institut de Chimie de Nice (ICN)**  
**(Institute of Chemistry of Nice)**

- Chemical dereplication ( separation of the compounds)
- Pesticides safety controls

# Management of the project

- ▶ **WP n°3: Therapeutical activity screening and active ingredients identifications**

**Partners : Pool of international experts in research against**

→Cancers, infectious and neuro-degenerative diseases spread over the Caribbean.



- ▶ **WP n°4: Proofs of therapeutical observed mechanisms**

→Monitoring global changes induced at different cellular levels

→Cellular targets of the active sargasso compounds identification



**Partner : BIODIVMA-MARTINIQUE**

→Toxico-pharmacological controls.



**Partner : AREBio-MARTINIQUE**

→Studies of the biological constituents of sargasso

- ▶ **WP n°5: Communication and dissemination**

→Outreach events among the civil society as well as decision makers.



# Research questions addressed and results expected

➤ Sargasso extracts  
( in Martinique)

➤ Anticancer hits  
( in France)



➤ Biological and toxicologic compounds  
( in Martinique)

➤ Antiparasitic hits  
(in French Guiana)



➤ Separation of the compounds (also from pesticides) and safety controls  
(in France)

➤ Anti neurodegenerative diseases hits  
(Hungary)



➤ Antiviral hits  
( in France)

➤ Proofs of mechanisms  
(Martinique, France, China)



## Added value and dissemination perspective for development

- ▶ Innovative vocational and pedagogical training program.
- ▶ International experts in respective area of research.
- ▶ Interdisciplinary collaboration between biologists and chemists :
  - new perspectives to rely biological activities to molecular identification
- ▶ Project dissemination in Nigeria and Caribbean : same pathologies, same Sargasso.
- ▶ SargScreen website and organising outreach events among the civil society as well as decision makers.