



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

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Introduction

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

▶ **Great pharmaceutical 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

▶ **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)

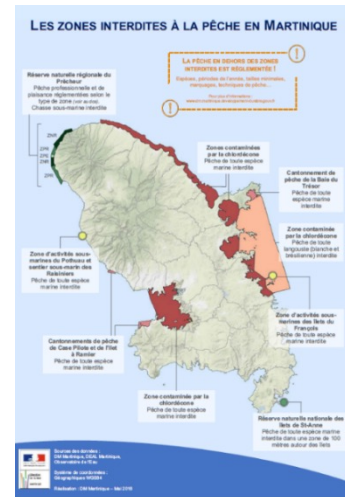
(Maritime and Aquaculture Vocational Training School)

→ 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)

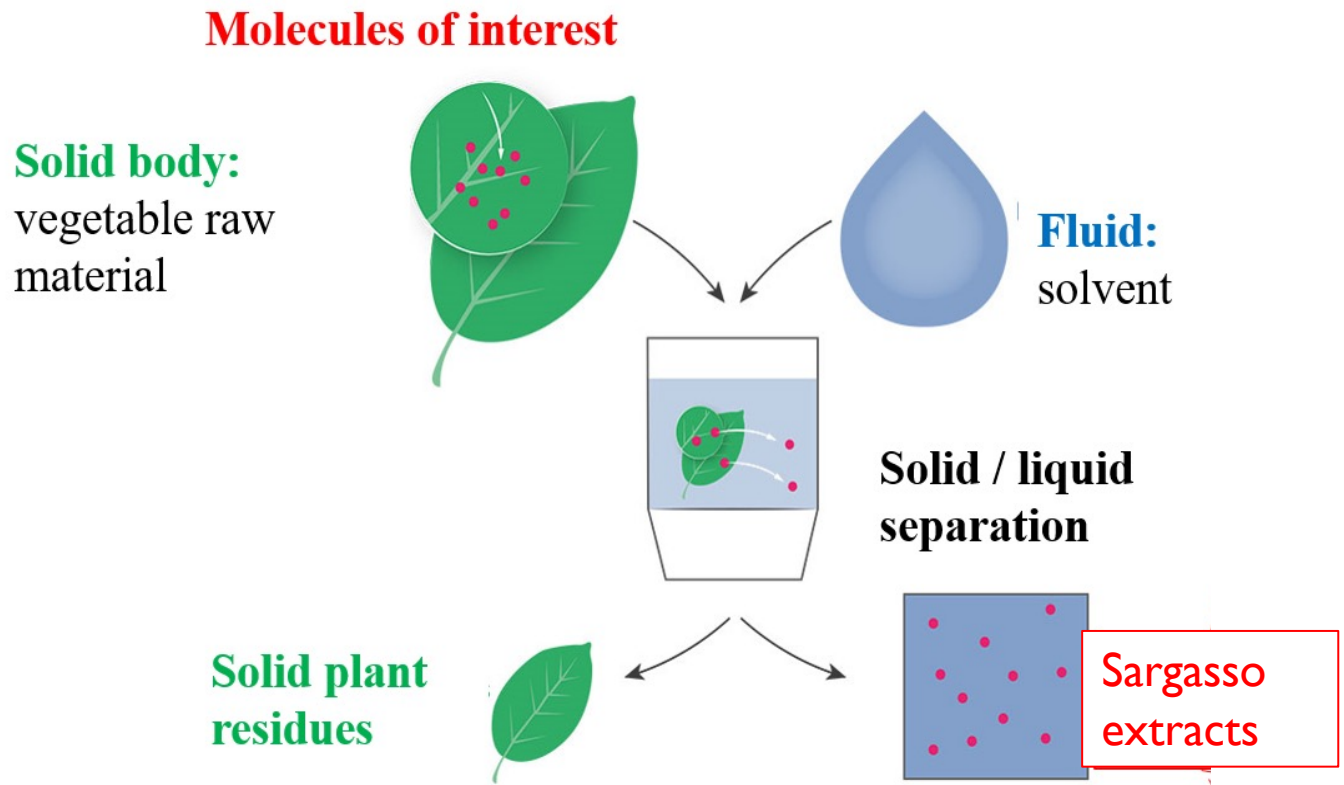
Partner : Office National des Forêts (ONF)
(National Forest Office)

→ 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)
(Agroressources 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

→ Toxicopharmacological 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.