CHITELIX

PFE BOOK

2025-2026

Want to work with us?

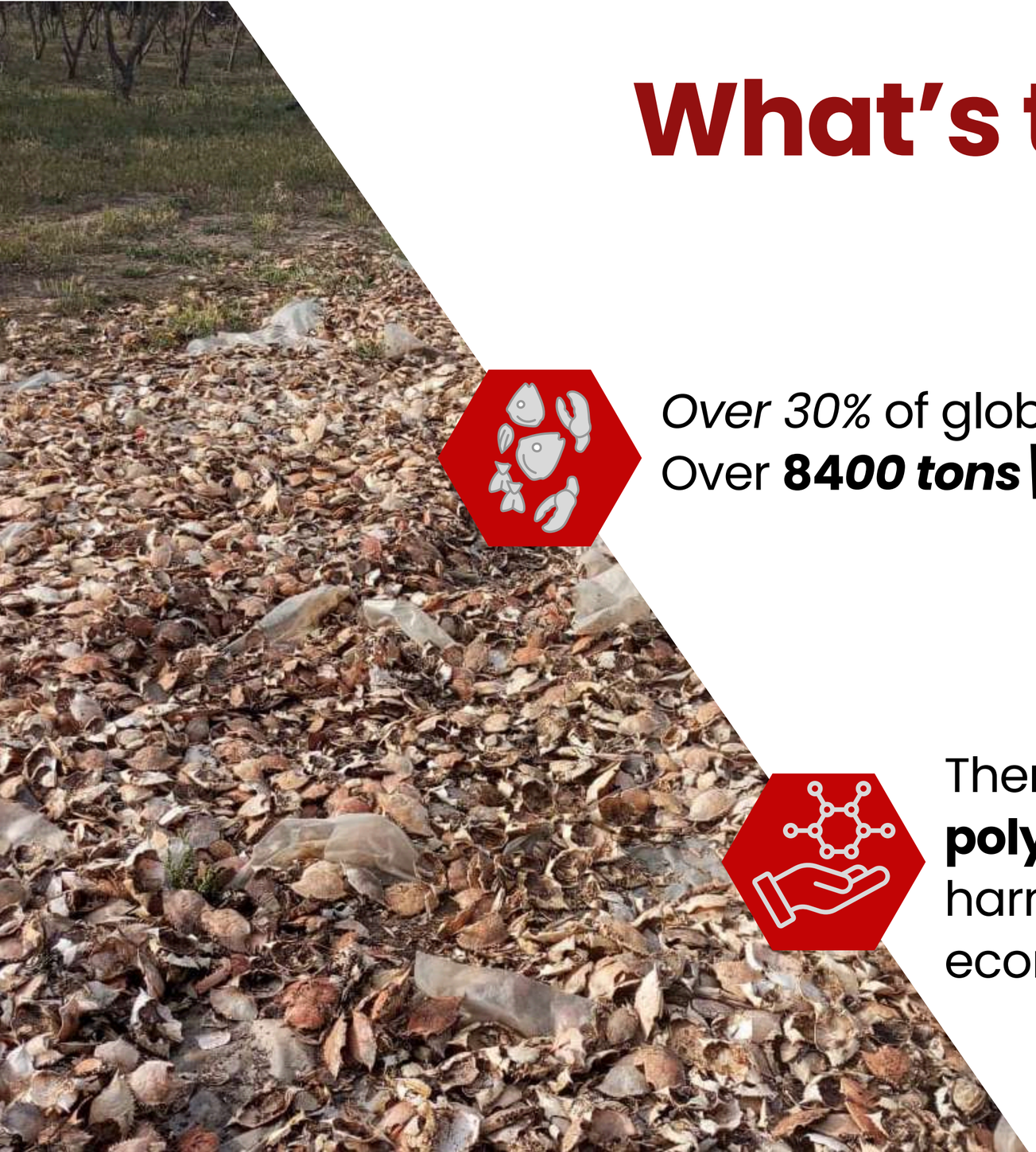
(+216) 96 380 502 / 29 28 11 98

contact@chitelix.com

Pôle de l’Agroalimentaire de Bizerte,

Boulevard de l’UMA, Menzel Jemil 7080

What’s the challenge?



Over 30% of global seafood production is wasted yearly.
Over **8400 *tons|year*** of crab waste in **Tunisia** only.

There is a critical need for **eco-friendly polymers**, reducing the environmental harm of petrochemicals and supporting economic growth.

Our facilities

Production facility located in “technopole agroalimentaire de bizerte”

We have **R&D & marketing office** in Startup village, menzah 1, a friendly environment with a dynamic startup ecosystem.

Chitelix is a pioneering **biotech** startup focused on transforming seafood by-products into valuable **biopolymers** and ingredients.

Using a **green solution** that contributes to a positive social and environnemental impact by reducing waste and creating **value** throught **circular- economy** model.

Our values

C reativity: find unique solutions

H onesty: in all aspects of business

I ntegrity: ethical principles in all business practices

T rust: with clients, partners & stakeholders

E nvironmental consciousness: through responsible practices

L earning: fostering a culture of continuous learning

I nnovation: to drive advancements and stay ahead

X eniality: welcoming towards others

What’s chitosan?

The 2nd Most abundant biopolymer that substitutes petrochemicals polymers

Unique properties

- Non-toxicity
- Biocompatibility
- Biodegradability
- Fat binding capacity
- High water retention

- Absorption selectivity
- Antioxydant & Antitumor
- Gel & film forming ability
- Anion binding & chelation
- Antimicrobial & antifungal

Application

1200+ applications in 500+ industries

Chitosan is the only cationic biopolymer on earth, it replaces petrochemical polymers mainly in agriculture, water treatment, food and pharmaceutic inudstry

Drug delivery
Wound dressing
Biomedical implants

Food preservative
Eco packaging
Weightloss

Antifungal
Biopesticide
Biostimulant

Biofloculant
Remediation

Few exemples

Accelerations & awards

Regenerative Blue Economy Challenge

uplink TOP INNOVATOR

WORLD ECONOMIC FORUM

WeMed Mediterranean Sustainability Award 2024

Innovation challenge Winner

FORUM DE L'OFFICINE

TT Tunisie Telecom

SPOT

ACCELERATEUR.M

LAB INNOVA FOR TUNISIA 2023

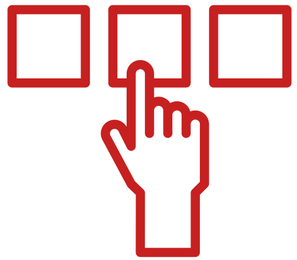
ITA ITALIAN TRADE AGENCY

foodstart The FoodTech Program

Awards / Prizes

Accelerations

How to apply ?



Choose a project

Choose one or two titles from those proposed

Send your CV

Send your cv with an accompanying e-mail explaining your interest in the topic.

E-mail :
office@chitelix.com

HR & technical interview

1. Technical interview
2. HR interview

Our projects

Development of a Veterinary Healing Gel Based on Chitosan Enriched with Medicinal Plant Extracts

01

Project overview

This project aims to formulate a topical veterinary healing gel combining the natural bioactivity of chitosan with the antimicrobial and anti-inflammatory properties of selected medicinal plant extracts. The study will evaluate basic physicochemical stability, antimicrobial activity, and wound-healing potential in simple in vitro models.

Required skills

- knowledge of chemistry or biochemistry
- Interest in cosmetic or pharmaceutical formulation
- Motivation to learn simple microbiological tests
- Ability to collect and analyze experimental data with guidance.

4-6 months

Veterinary care
Chemistry
Biotechnology

Chitosan-Based Hair Repair Serum

02

Project overview

The goal of this project is to create serums or sprays for hair repair based on modified chitosan to improve strength and hydration. The formulation will be optimized for stability and tested on hair fibers using basic mechanical and visual assessments.

Required skills

- Basic understanding of chemistry or materials science
- Interest in cosmetic product development
- Willingness to learn how to test product stability and simple hair fiber properties
- Ability to collect and analyze experimental data with guidance.

4-6 months

Pharmacy
Chemistry
Biotechnology

Formulation of Aquaculture Feed Based on Chitosan

03

Project overview

This project aims to develop and optimize aquaculture feed formulations enriched with chitosan to improve growth performance, immunity, and sustainability and assess the nutritional and functional properties of chitosan as a feed additive.

Required skills

- Basic knowledge of biology or food science
- Interest in animal nutrition and aquaculture
- Ability to perform simple lab measurements with supervision
- Motivation to innovate in the aquaculture field

4-6 months

Aquaculture
Feed technology
Biotechnology

Development of a Chitosan–Biochar Hybrid Material for Sustainable Wastewater Treatment

04

Project overview

The project focuses on creating a hybrid adsorbent combining biochar and chitosan to remove pollutants (organic matter, nutrients, and heavy metals) from real wastewater. The material will be produced, characterized, and tested for adsorption capacity and regeneration potential.

Required skills

- Knowledge of chemistry or environmental engineering
- Interest in water treatment and sustainable materials
- Ability to follow simple adsorption experiments and analyze results.

4-6 months

Environmental engineering
Chemistry

Chitosan enriched with Oligoelements to Boost Plant Resistance to Abiotic Stress

05

Project overview

This project aims to develop a chitosan formulation enriched with bioavailable trace elements to improve plant resistance to drought, salinity, or temperature stress. The work will include formulation, stability testing, and greenhouse/controlled growth trials.

Required skills

- Knowledge of plant biology or agronomy
- Interest in formulation of natural biostimulants
- Ability to follow plant growth experiments and record data.

4-6 months

Agronomy
plant physiology

Chitosan–Algal Extract Nanoemulsion to Boost Biostimulation Against Biotic Stress

06

Project overview

This project aims to formulate a stable nanoemulsion combining chitosan and algal extracts to stimulate plant defenses and reduce sensitivity to fungal and bacterial pathogens. Laboratory stability tests and greenhouse assays will be performed.

Required skills

- Basic understanding of biology or agronomy
- Interest in natural crop protection products
- Ability to follow simple lab and plant trials with supervision.

4-6 months

Agronomy
Plant physiology
Plant Protection

Effect of crab shell powder on soil microbial communities and the control of root-knot nematodes

08

Project overview

The study aims to investigate the effects of crab shell meal (CSM) on the soil microbiome and cucumber growth under root-knot nematode (*Meloidogyne spp.*) infection. It will use targeted metagenomics in a pot experiment to assess how CSM influences the abundance of chitinolytic bacteria (Firmicutes and Actinobacteriota), plant growth, and nematode severity.

4-6 months

Required skills

- Knowledge of soil microbiology and plant–pathogen interactions
- Knowledge of molecular biology techniques and metagenomics
- Interest in Nematology
- Motivation to learn, innovate, and apply new research methods
- Ability to collect and analyze experimental data with guidance.

Plant Protection ,
Agronomy,
Soil Microbiology

Application of Chitosan for the Management of Crown Gall Disease

09

Project overview

This project aims to investigate the antibacterial activity of chitosan against *Agrobacterium tumefaciens* and its potential to control crown gall disease in tomato seedlings. The study includes in vitro tests using different chitosan concentrations to assess inhibition of bacterial growth, as well as in vivo pot experiments to evaluate the effect of chitosan treatments on gall formation and disease severity.

Required skills

- Knowledge Plant pathology
- Knowledge of basic microbiology
- Strong interest in the study of bacteria affecting plants
- Motivation to learn, innovate, and apply new research methods
- Ability to collect and analyze experimental data with guidance.

4-6 months

Plant Protection , Plant Pathology,

Chitosan as a Postharvest Treatment to Reduce Green Mold in Citrus and Preserve Fruit Quality

10

Project overview

The project aims to evaluate the potential of chitosan as an alternative to chemical fungicides for controlling green mold (Penicillium digitatum) in citrus fruits. It investigates the antifungal activity of chitosan in vitro and its effectiveness in reducing disease incidence in vivo, as well as its impact on fruit defense responses and quality attributes during storage.

Required skills

- Knowledge of plant pathology and postharvest diseases
- Motivation to learn, innovate, and apply new research methods
- Ability to collect and analyze experimental data with guidance.

4-6 months

Plant Protection , Plant Pathology,

Effect of Chitosan Based Seed Coating on Seed Quality Enhancement and Antifungal Activity

11

Project overview

This project aims to investigate the effect of chitosan-based seed coating on improving seed quality and providing protection against fungal pathogens. The study will evaluate how chitosan treatments influence germination, seedling vigor, and overall seed performance, while also assessing their antifungal activity as a sustainable alternative to chemical seed treatments.

Required skills

- Knowledge of plant pathology
- Laboratory skills
- Ability to conduct germination and seedling vigor tests
- Motivation to learn, innovate, and apply new research methods
- Ability to collect and analyze experimental data with guidance.

4-6 months

Plant Protection , Plant Pathology,

Effect of Chitosan for the Control of Potato Diseases Caused by Late Blight (*Phytophthora infestans*)

12

Project overview

This project aims to evaluate the potential of chitosan as a sustainable strategy to manage mildiou in potatoes. The study will focus on testing the antifungal activity of chitosan in vitro and determining its efficacy in reducing disease incidence and severity on potato tubers and plants under controlled conditions.

Required skills

- Knowledge of plant pathology
- Laboratory skills
- Ability to conduct germination and seedling vigor tests
- Motivation to learn, innovate, and apply new research methods
- Ability to collect and analyze experimental data with guidance.

4-6 months

Agronomy, Plant Protection , Plant Pathology

Strategic Development of Standardized Job Descriptions and an HR Knowledge Database

13

Project overview

This project aims to create standardized and comprehensive job descriptions for all company positions by collecting and analyzing the actual tasks and responsibilities of each employee structuring them and building a centralized and easily accessible HR database to store and update these descriptions for future reference.

Required skills

- Good communication and interpersonal skills
- Analytical thinking to identify and organize tasks and responsibilities.
- Basic knowledge of Human Resources management and job description standards.
- Writing and editing skills to produce clear and professional documents.
- Familiarity with databases or collaborative tools (e.g., Excel, Notion, SharePoint).

1-3 months

Human Resources ; Business Administration

Implementation of an Internal Employee Engagement and Satisfaction Survey System

14

Project overview

This project aims to design and implement an internal satisfaction barometer by developing a simple and relevant questionnaire to assess key factors such as motivation, communication, work environment, and career development and proposing actionable recommendations to enhance employee well-being and engagement.

Required skills

- Knowledge of survey design and data collection methods.
- Analytical skills to interpret survey results and extract insights.
- Basic understanding of HR practices and employee engagement strategies.
- Good communication skills to present findings and propose improvement actions.
- Ability to use data analysis tools (e.g., Excel, Google Forms, or survey platforms).

1-3 months

Human Resources ; Business Administration

CHITELIX

Learn more

We are also looking for voluntary internships and pre-recruitment internships. Contact us to find out more.

JOIN NOW

to shape the future of

sustainable innovation