



***National Institute of Physical &
chemical Research & Analysis (INRAP)***
R &D & innovation



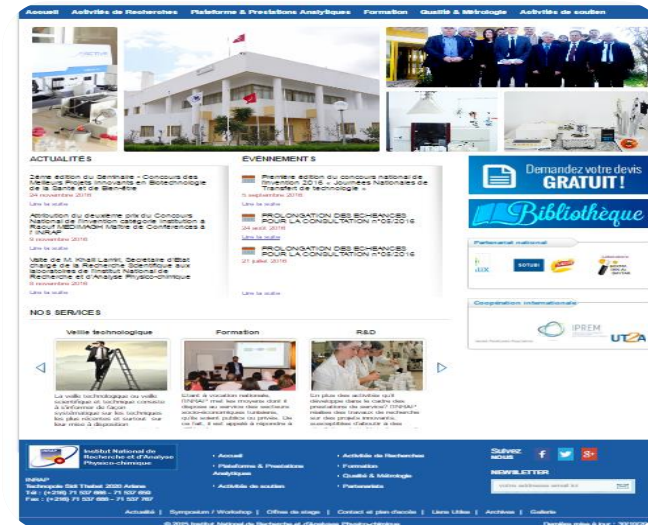
Leila TRIKI
Chief Engineer
Marketing and Communication Service Manager
Head of Technology Transfer Office (BuTT)



Date of creation : January 1995.
Legal status : Crown Corporation

Human and financial resources :

- Human resources : 170
- Total investment : A total budget of 20M\$, about 15 M\$ were dedicated to scientific equipments and logistic supports.





Technological Trend

Multidisciplinarity

Missions :

- R&D Programs : **Applied** and **Respond** to national needs
- Expertises and Outsourcing analysis : **Accreditation** in several analysis (Pesticides)
- **Capacity** Enhancement through trainings : standards and on demand : 3 international Courses in GC and GC MS for African countries in collaboration with **OPCW**



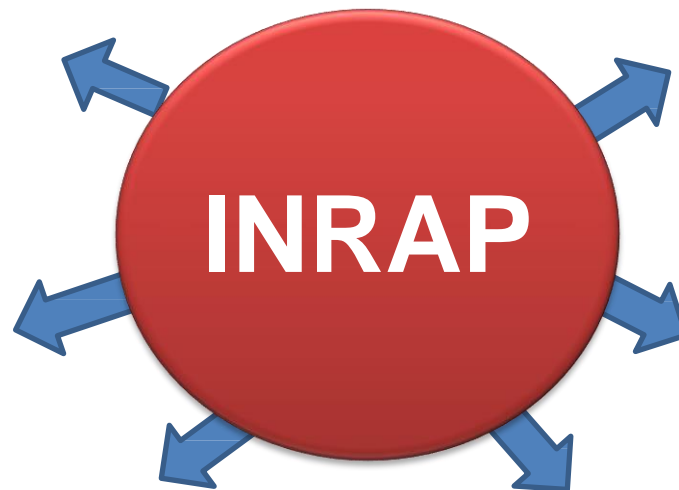
The particularities of INRAP

SKILLS IN
RESEARCH – R&D

COMPETENCIES IN
ANALYTICAL
SERVICE

HIGH PERFORMANCE
EQUIPMENT

TECHNOLOGY
MONITORING
UNIT

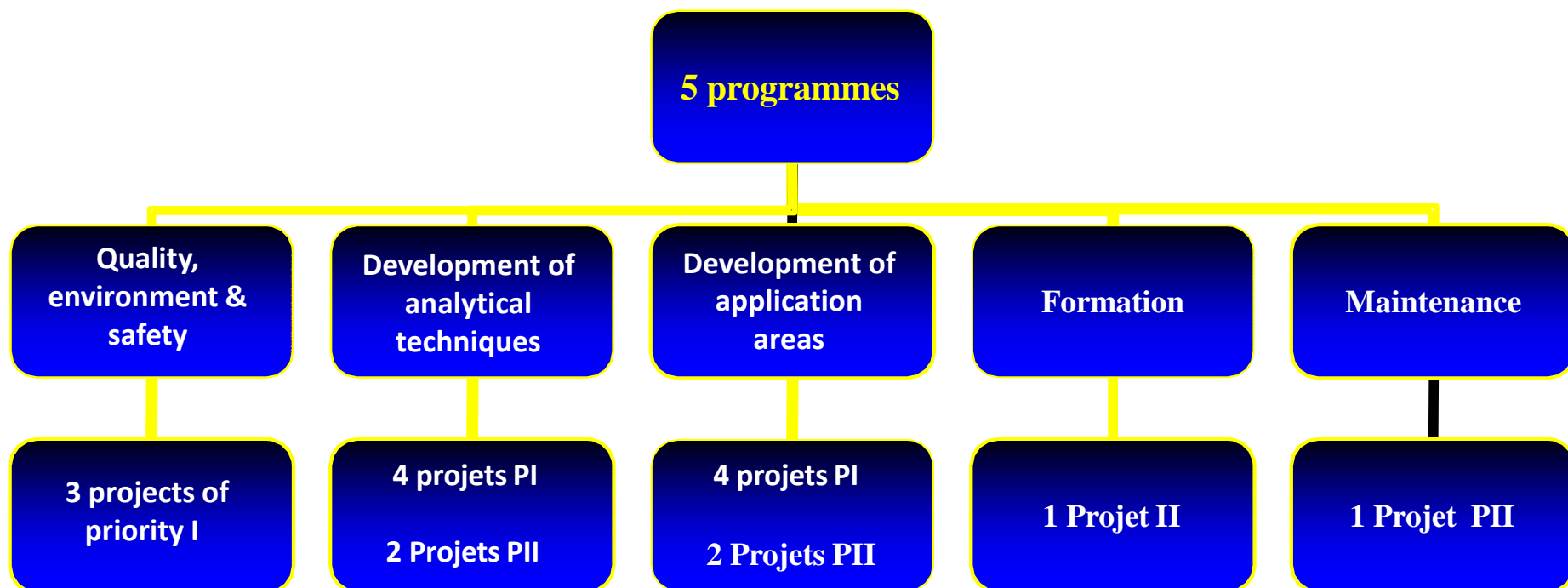


NATIONAL LABORATORY OF
CHEMICAL METROLOGY -
LNMC

QUALITY MANAGEMENT SYSTEM
COMPLYING WITH ISO / IEC 17025



Associate International Laboratory (LIA-T) in Analytical Research Renewed 2016 -2019





Production of Reference Materials TRM - made in Tunisia

First Tunisian experiment in the production of Certified Reference Materials intended for the control of metal trace element analysis in food.

- Production of a Reference Material (TRM 115F1): Mercury and methyl mercury in the fish matrix (tuna) according to an internal method and in accordance with ISO guides 34 and 35.

→ stability studies performed.

Perspective: Organization of an on-going national proficiency test via the ANM and TUNAC for the certification of this Reference Material.





- Production of a second Reference Material (TRM 116 R2): **Cadmium and lead** in the **rice flour matrix** according to an internal method and in accordance with ISO guides 34 and 35.

→ homogeneity studies of this MR underway

Perspective: Organization of a national proficiency test via the ANM for the certification of this Reference Material.

Interest: Allow to the Tunisian laboratories participants:

- to evaluate their skills
- Free participation in this comparison CIL (Comparison Inter Laboratory) **often expensive**





An important choice of general and specific training courses in analytical chemistry (predefined training cycles and à la carte training) allowing:

- * Acquire and enhance analytical skills physicochemical, in the context of a normative context.
- * Promote the upgrading of laboratories by accompanying them in the introduction of quality management systems and chemical metrology according to the latest standards.
- * **Help analysts better understand the fundamentals of new techniques**



Institut National de Recherche
et d'Analyse Physico-chimique

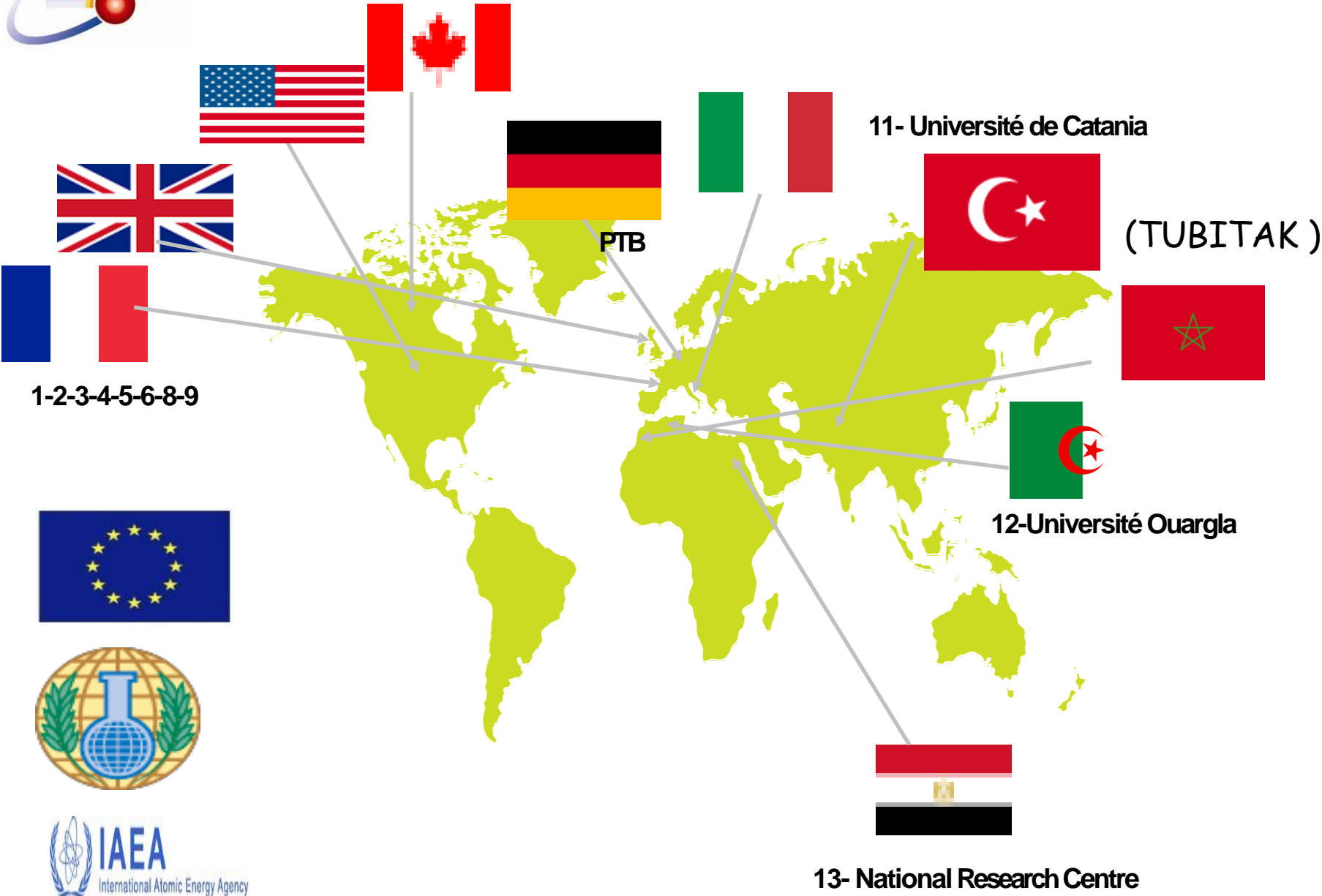
Catalogue de Formation en
Compétences Analytiques

CFCA - INRAP





International collaborations





16 International Cooperation Projects 2015 - 2020

2 Projets DGRST/CNRS

2 Projets PHC-Utique

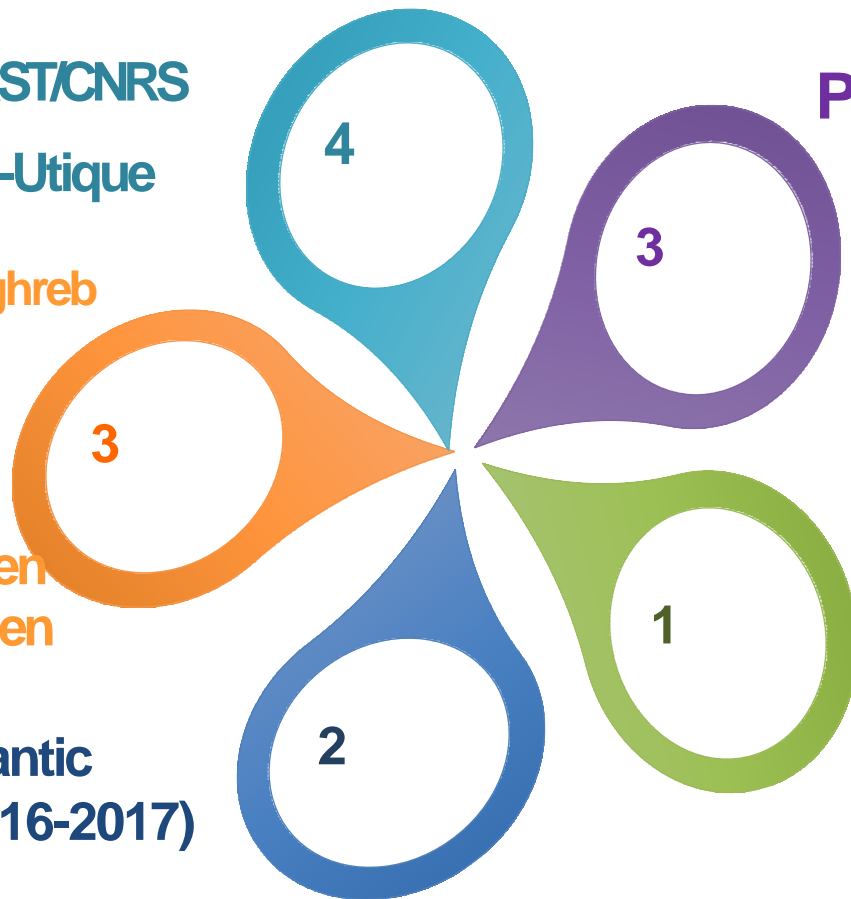
1 Projets PHC-Maghreb

1 Projets Tun-Algérien

1 Projets Tun-Egyptien

2 Projets Trans Atlantic

Canada / USA (2016-2017)



Projets Européens

- Transboundary BioVec (2014 – 2016)
- PTB (2016 – 2018)
- ArimNet2 (2017-2020)
- EuraMet EMPIR (2017 – 2019)

Associate International Laboratory (**LIA-T**) in Analytical Research

Pairing **INRAP - IPREM**

ORGANIZATION FOR THE PROHIBITION OF CHEMICAL WEAPONS - **OPCW**



Quality Management - Metrology - Accreditation

Accreditation
2016

Scope of accreditation

Determination of pesticides in matrices of plant origin by GC-ECD, confirmation by GC-MS

Evaluation Audit by TUNAC took place on 19-20 December

2016: obtaining the ACREDITATION 2017-2022



Future
accreditation

Scope of accreditation

- * Determination of antibiotics in matrices of animal origin by LC-MSMS
- * Determination of heavy metals in fish by ICP-AES
- * Determination of mycotoxins in cereals by HPLC



LNMc Strategic Action

Design and implementation at INRAP:

- * Reference Materials Production Unit
- * Organization of CILs at regional (Maghreb and Africa) level → **INRAP : African Subway Platform**

Action supported by a EURAMET-EMPIR project (European Metrology Program for Innovation and Research)



Recherche Développement



VIPACFood

Valorization of Industrial fruits by Products and algae biomass waste: Development of Active Coatings to extend Food shelf life and reduce food losses

(2017 – 2020)

**Khaoula KHWALDIA,
National Institute of Research and Physicochemical Analysis, Tunisia**

ARIMNet2 meeting – 30 March 2017, Tangier, Morocco



CONSORTIUM

Project starting date: 2017-04-01

Project ending date: 2020-03-31

Overall budget: 280 000 €

- **Partner 1 (Coordinator)**: Institut National de Recherche et d'Analyse Physicochimique (INRAP), Tunisia
- **7 Partners** : 3 Italy + 2 Portugal + 1 Spain + 1 Chambre IPATN

Goal :

**DEVELOPMENT OF BIODEGRADABLE PACKAGING
FROM AGRICULTURAL BY-PRODUCTS**

EURAMET EMPIR project 2017 - 2019

" Development of scientific and technical skills in the field of chemical analysis "

✚ This project is part of the rapid development of highly chemical metrology oriented society's needs for reliable **chemical measurements and legislation and international agreements.**

Main objective: To improve research skills in the field of chemical metrology for national metrology institutes and designated institutes such as INRAP.





RID - Technology Transfer 1

Company "Carton Art Production": **Manufacturer of cardboard based products**

Accompaniment: The GIZ

Project: Developpement of a biocompatible enduction product for cardboard to reduce water permeability

Objectives:

Develop biodegradable coating solutions based on natural substances to reduce the water vapor permeability of the board and increase its resistance to water.



RID - Technology Transfer 2

Company "TUNIPELLETS" : **Manufacturer of Wood pellets**
Generate high amount of wood waste

Accompaniment : The GIZ

Project : Eco compatible solution for VOC-Free insulating material using Wood Waste

Objectives:

development of a process for the manufacture of bricks made from wood waste intended for construction of ecological walls with thermal insulation properties, phonic, non-flammable moisture and mechanical resistance!

Success Story

Development of a recycled material from industrial leather waste with antibacterial properties



PNRI Project INRAP / CNCC

Dr. Raouf MEDIMAGH, MC



2nd Prize National Competition of the Invention (2016)

Gold Medal at the IIFME, Kuwait (2017)

Gold Medal with Congratulation of the jury Geneva Invention Fair (2017)

INRAP, Sidi Thabet





Context and innovation

- * **Valorization** of an industrial waste by **adding added value**
- * **Sustainability** of the activity compared to conventional treatments
- * **Non allergenic**

OUR COMPETITIVE ADVANTAGES

- * Final product obtained from **60%** of renewable resources
- * Process based on the use of **water**
- * Leather that meets industry standards
- * A rich product : suitable for people with allergies and / or diabetes



Technology Transfer Office (BuTT)

Signature of the framework agreement of collaboration between INRAP and ANPR in the field of Technology Transfer, for the creation of INRAP's Office of Technology Transfer since April 2015 and renewal of this agreement,

The TTO collaborates with the research structures, the regional support structures and relies on the ANPR for coordination at the national level.



Technology Transfer Office (BuTT)

Training program in the framework of PASRI as well as internships

Modules

Management de projets et organisation (démarche, organisation, rôles, planification, suivi...)

Processus et stratégie de valorisation

Planification et outils de suivi, Gestion de soi et du temps, Gestion des réunions

Management de la PI et contractualisation

Communication et marketing (communication interpersonnelle, négociation, promotion de la structure, de ses compétences, de ses activités et de ses résultats)

Active Short Consultancy en pratique

OPENING OF INRAP ON THE ACADEMIC ENVIRONMENT

A weekly day of visits and meetings, every Wednesday is set up to allow students and even high school students to visit the analytical platform and learn about the analyzes made in the service of Tunisian socio-economic sectors.



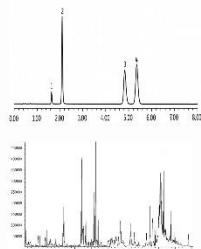
ANIMATION OF OPEN DAY FOR THE BENEFIT OF FOOD PROCESSING INDUSTRIES

The objective of this day is to visit the Analytical platform and discuss the partnership relations with agribusiness companies, and to express their needs and expectations in terms of food safety in accordance with the standards in force. This meeting was intended in particular to take note of the sector and the initiatives related to quality control adequacy favorable to sustained export growth



INSTITUT NATIONAL DE RECHERCHE
ET D'ANALYSE PHYSICO- CHIMIQUE

*L'INRAP AU SERVICE
DE LA SECURITE ALIMENTAIRE*



**JPO- BUSINESS COFFEE AU PROFIT
DE L'INDUSTRIE AGRO ALIMENTAIRE**

Mercredi 20 Avril 2016 de 8h30 à 14h

Inscription :

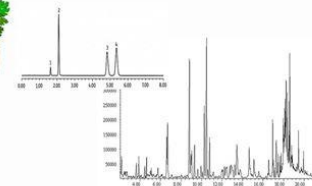
Site web: www.inrap.rnrt.tn

Email: marketing@inrap.rnrt.tn



INSTITUT NATIONAL DE RECHERCHE
ET D'ANALYSE PHYSICO- CHIMIQUE

*L'INRAP AU SERVICE
DE LA SECURITE ALIMENTAIRE*



**JPO- BUSINESS COFFEE AU PROFIT
DE L'INDUSTRIE AGRO ALIMENTAIRE**

Jeudi 20 Avril 2017 de 09h à 14h

Inscription :

inrap.contact@gmail.com



ANIMATION OF OPEN DAY FOR THE BENEFIT PHARMACEUTICAL INDUSTRIES

The objective of this day is to visit the Analytical platform and discuss the partnership relationship with the pharmaceutical and cosmetic companies, and to express your needs and expectations in terms of health and well-being in accordance with the standards in force. This meeting was intended in particular to take note of the sector and the initiatives related to quality control adequacy favorable to sustained export growth.



Journée Portes Ouvertes



MARDI 16 MAI 2017 À PARTIR
DE 09H00

Pour s'inscrire: inrap.contact@gmail.com

PARTICIPATION IN FESTIVITIES AND FAIRS

Participate in fairs to be closer to customers with anime stands and the presence of INRAP staff for the opening of the socio-economic world. This was INRAP's third participation at LAB Expo for its 2016 edition. This year Lab Expo 2016 was organized in parallel with Health Expo 2016, a fair that targets the health sector.



FRANCOPHONE CONGRESS ON ANALYTICAL SCIENCES AND APPLICATIONS: CAFSAA 2017

Its purpose was to review the situation of the development and application of the analytical sciences with all French-speaking African countries in order to discuss the evolution of knowledge and their applications to respond to the evolutions and new social challenges of African territories.

COMITÉ SCIENTIFIQUE

Pr C. AMATORE, Académie des Sciences, Paris, France
 Pr M. HAMMAMI, DG INRAP, Ariana, Tunisie
 Dr O. DONARD, IPREM Pau, France
 Dr N. SCHILDKNECHT, ISA Lyon, France
 Pr M. AOUNI, Université de Monastir, Tunisie
 Pr H. STAMBOULI, LRATSGR, Institut Criminalistiques, Rabat, Maroc
 Pr G. DJANEYE-BOUNDJOU, Université de Lomé, Togo
 Dr H. BUDZINSKI, EPOC, Université de Bordeaux, France
 Dr M. TEDETTI, MOI-CDS-IRD, Sfax, Tunisie
 Pr H. MARTINEZ IPREM, Université de Pau, France
 Pr A. ALI, Université de Ngaoundéré, Cameroun
 Pr A. ALLAL, IPREM, Université de Pau, France
 Pr M. GARGOURI, INSAT, Université de Carthage, Tunisie
 Pr B. GRASSL, IPREM, Université de Pau, France
 Dr S. Reynaut, IPREM, Université de Pau, France
 Pr R. MEDIMAGH, INRAP, Ariana, Tunisie
 Pr S. CHATTI, INRAP, Ariana, Tunisie
 Pr F. SOUISSI, INRAP / FST, Université El Manar, Tunis, Tunisie
 Pr A. AMINE, Université Hassen II de Casablanca, Maroc
 Pr H. SOCLO, Université d'Abomey Calavi, Bénin
 Dr N. JAFFREZIC, ISA Lyon France
 Pr A. ZAZOUA, Université de Jilil, Algérie
 Pr F. ALBAREDE, ENS, Université de Lyon, France
 Dr I. KRIMM, ISA Lyon, France
 Pr F. MOUSSA, Paris-Saclay, France
 Dr H. CASABIANCA, ISA Lyon, France
 Pr H. BEN JANNET, Faculté des Sciences, Université de Monastir, Tunisie
 Pr P. MAITRE, Université Paris-Sud, Orsay, France
 Dr H. A TOURE, Faculté de Pharmacie de Bamako, Bamako, Mali
 Dr P. FISICARO, Laboratoire National d'Essai, Paris, France
 Pr B. LE BIZEK, Université de Nantes, LABERCA
 Dr F. SEBY, Ultra Trace Analyses Aquitaine, Pau, France
 Dr C. BORDES, ISA Lyon, France
 Pr H. SNANI, INRAP, Ariana, Tunisie
 Pr R. SOUISSI, INRAP, Ariana, Tunisie
 Pr K. KHWALDIA, INRAP, Ariana, Tunisie
 Pr A. ALLATRACHE, INRAP, Ariana, Tunisie
 Dr H. GALAI, INRAP, Ariana, Tunisie
 Mme H. HAMDI, INRAP, Ariana, Tunisie

PARTENAIRES



www.cafsaa.tn



CAFSA 2017 | CONGRÈS AFRICAIN ET FRANCOPHONE SUR LES SCIENCE ANALYTIQUES & APPLICATIONS

5 Thèmes liés à l'innovation analytique-Economie
 28 Conférenciers invités
 2 Tables rondes
 7 Cours pratiques

27 - 30 Novembre 2017
 Radisson Hammamet - TUNISIE



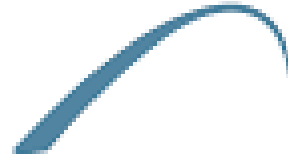
TRAINING "TECHNOLOGY TRANSFER"

As part of the framework agreement of collaboration between INRAP and ANPR in the field of Technology Transfer, the BuTT-INRAP organized a Training Day "Transfer of Technology" which took place on June 19, 2018



Barriers to TTO activities

- **Absence of a clear status of the TTO**
- **Provide a clear career path for TTO staff**
- **Lack of motivation for TTO referent**
- **Unsuitable financing procedure**
- **Administrative heaviness internally and with ANPR**
- **Absence of a Procedures Manual**
- **inactive TTO Network**
- **Socio-economic world not involved in TT process**



THANK YOU
FOR
YOUR ATTENTION