THE PROGRAM

«PHYTOGENICS AS DRIVERS TO FIGHT INFLAMMATION OF DIGESTIVE SYSTEMS »

SEPTEMBER 21st, Afternoon (UTC + 2)
SESSION 1 : "MECHANISMS OF INFLAMMATION"

ANNECY or ONLINE ! (Zoom)

14:00 - INTRODUCTION

14:30 – 15:30

Dr. Delphine Le Roux

PhD in Immunology (Institut CURIE, Paris, France).
Post-doctoral fellow on cell biology of dendritic cells, on *in vivo* models of rheumatoid arthritis and nanoparticles for targeted therapies (Institut COCHIN, Paris, France).
Currently working in the Veterinary School of Alfort as an assistant professor teaching immunology to veterinary students. Research activity focused on Toxoplasma, a foodborne parasite, in production and domestic animals.

Cellular and molecular players of the intestinal immune system

This presentation will be the global introduction of the theme of the year.
The main signaling pathways of the intestinal immune system will be developed, including receptors and effectors at different levels (tissue, cells, nucleus).
During this presentation, a special focus will be done on the key role of innate immunity.
The global picture will be used by other speakers to investigate the possible interactions between plant secondary metabolites and inflammatory mechanisms.

15:30 – 16:30

Dr. Ronan Le Goffic

PhD in Virology (University of Rennes I, France).
Post-doc on hepatitis C virus (University of Washington Seattle).
Second post-doctorate on influenza virus (Pasteur Institute, Paris, France)
Currently working in INRAE as a permanent researcher. Head of a group working on avian influenza. Work on host-pathogen interactions to develop new therapies for viral diseases in human and veterinary medicine.

Development of a rodent model to study virus-induced inflammation processes

During this presentation, the model of influenza infection in rodents will be presented.
Special attention will be paid to intraviral imaging by describing live mapping of viral replication and the resulting inflammation.
Some possibilities for analysis will be presented and some practical application examples will be detailed.
This model could be used for the screening of active plant secondary metabolites.

BREAK

17:00 – 18:00

Dr. Francis Hadji-Minaglou

Botanicert is an analytical laboratory expert in the plant field.

Founder and Scientific Director of Botanicert
PhD in Pharmacy
Expert in ethnobotany, pharmacology, pharmacognosy and plant toxicology

How plant secondary metabolites could interfere with inflammatory pathways?

The following topics will be addressed:

- *Brief reminder on the nature of plant secondary metabolites,*
- *Study on relation between structure / activity related to inflammation,*
- *A quick review on plants known as specific anti-inflammatory,*
- *Ways to improve and use plants and plant secondary metabolite in order to treat digestive inflammatory pathway,*
- *Concrete examples with some plant metabolite.*

BIOSIS DAYS

ID4FEED Ideas for animal feed

SEPTEMBER 22nd , Morning (UTC + 2)
SESSION 2 : "PLANT SECONDARY METABOLITES: PRODUCTION AND ANALYSIS"

08:45 - INTRODUCTION

09:00 – 09:40

Dr. Leila Falcao

PhD in Food Science (University of Bordeaux, France).
Ex R&D Manager Nutraceutical and Health in Naturex/Givaudan.
Currently CEO of Inaturals (Consultancy, Research and Customized Prototyping of natural ingredients company).

Meet on the bridge: The main big movers of well-being market in digestive health

Digestive health could be affected by functional gastrointestinal disorders (morphologic and physiological abnormalities) which often occur in combination with motility disturbance, visceral hypersensitivity, altered mucosal and immune function, altered gut microbiota, and altered central nervous system processing (gut brain axis).
In this presentation, a survey on the main herbs ingredients launched in global nutraceutical market with effective results to promote digestive health on microbiota modulation and gut-brain axis will be exposed.

09:40 – 10:10

Dr. Camille Rozier

ID4FEED R&D Manager.
PhD in plant ecophysiology, phytochemistry and microbiology.

Better understand the immunity of plants and animals to select plant secondary metabolites

Huge efforts have been made by ID4FEED to make the plant overproduce defense secondary metabolites, conserve the totum of the actives smartly combined by the plant, and optimize their efficacy thanks to vectorization processes.
This presentation will be an overview to better understand the intricate mechanisms of plant immune responses and their ability to produce a well-balanced panel of defense molecules called phytoalexins. And, finally, what motivates the strategy of using plant defense molecules to improve animal immune responses and health.

10:10 – 10:50

Dr. Serge Michalet

University Claude Bernard Lyon 1 (France) – Centre d'Etude des Substances Naturelles (CESN platform).
Chemical ecology including plant-microbes, bacteria-bacteria and amoeba-bacteria interactions, pharmacognosy, phytochemistry.

Benefits of metabolomics in the analysis of natural products and in the discovery of bioactive molecules

The rise of metabolomics since the beginning of the 21st century has brought a complementary view to the other -omic approaches (metagenomic, metatransciptiomic, metaproteomic) as it allows to establish what is really happening in a given organism or environment rather than what might happens.
The application of metabolomics in the analysis of natural products offers a large array of benefits, whatever the domain of application, including human or veterinary health and nutrition.
These benefits will be illustrated through various fundamental research experiments including plant-microbe and microbe-microbe chemical interactions.

SEPTEMBER 22nd , Morning (UTC + 2)
SESSION 2 : "PLANT SECONDARY METABOLITES: PRODUCTION AND ANALYSIS"

10:50 - BREAK

11:10 – 11:30

Coline Pons

ID4FEED and Avignon University PhD Student.
PhD work focused on UV radiation effects on carotenoids and capsaicinoids concentrations of two chili genotypes.

Effects of elicitation treatments on carotenoids and capsaicinoids concentrations of two chili genotypes

In Capsicum genus plants (chili), two families of compounds have interesting properties to support animal health: capsaicinoids and carotenoids. These two types of molecules co-exist in different amounts in Capsicum genus plant species but several biotic or abiotic factors are likely to influence their secondary metabolites synthesis. Light treatments (UV-C, pulsed light) and chemical treatments (H2O2) were applied to cultivated plants, or on fruits after harvest. Then, fruits were analyzed by HPLC-ESI-TQ-MS to determine fruits profiles in carotenoids and capsaicinoids.

11:30 – 12:10

Pr. Ramon Guevara

University of Queretaro (Mexico).
Collaboration with ID4FEED on Chemical elicitation of plant defense (plant physiology, gene expression, secondary metabolites).

Controlled elicitation in white mustard (Sinapis alba) increases glucosinolate production in the whole plant and seed

Controlled elicitation is a strategy to enhance plant secondary metabolites production using stress factors during plant cultivation. This strategy was tested for the production of glucosinolates in white mustard plants and seeds. The results suggested that some of the evaluated stresses significantly increased the contents of some important glucosinolates in several organs of the plant. Controlled elicitation is a promising strategy to increase in a sustainable way the levels of phytochemicals of industrial interest.

12:10 – LUNCH BREAK

Les Pensières Center for Global Health

BIOSIS DAYS

ID4FEED Ideas for animal feed

SEPTEMBER 22nd , Afternoon (UTC + 2)
SESSION 3 : "APPLICATION IN FARM ANIMALS"

13:30 – 14:30

Dr. Michel Magnin

ID4FEED R&D technical director.
DVM Veterinary School of Alfort, France.
PhD in Ecophysiology.
>30 years of experience in Animal Nutrition in various companies (feed manufacturers, premix companies and feed additives producers).
Different positions as technical, scientific or innovation manager.

Application of plant extracts in animal nutrition to fight inflammation of digestive systems

The large world of plant secondary metabolites offers many interesting technical responses interfering with the receptors and effectors of inflammation.
Practical application include the choice of the most effective compounds but also the definition of the best way of vectorization.
Combination of metabolites from different plant species with Capsicum derivatives seems to be very active in animals.

14:30 – 15:15

Prof. Dr. Chaiyapoom Bunchasak

PhD in Animal Science and Animal Nutrition (Gifu University, Japan).
Lecturer.
Currently working in Department of Animal Science Faculty of Agriculture of Kasetsart University (Thailand).

New research trial with ID PHYT CAPCIN in growing-pigs in Thailand (2020)

15:15 – 15:45

Dr. Eilir Jones

Director of Poultry Nutrition Ltd.
PhD in Poultry Nutrition (University of Nottingham's School of Agriculture)
>30 years of experience in the poultry nutrition industry in various feed companies.

Field experiences with ID PHYT CAPCIN in Jamaica, Sri Lanka and Saudi Arabia in broilers

15:45 – 16:15

François Gautier

ID4FEED & ID4TECH General Manager.
Food industry and marketing graduate.
>20 years of experience in the development and marketing of food and feed additives, especially in the international marketing of feed additives based on encapsulated vegetable extracts.

ID4FEED capacities to develop customized feed solutions

The discussion will be focused on :

- Sourcing,
- Eco-extraction,
- Eco-activation,
- Formulation,
- Vectorization.