



PRESS KIT ID4FEED

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HISTORY

The mixtures of plant extracts conceptualized by ID4FEED are produced by the Spanish company BORDAS in Seville

ID4FEED is a company specialized in the development and production of feed supplements for farm animals based on plants and plant extracts. The company has in-depth knowledge on induction, extraction and dynamisation of plants, and the protection of plant's intrinsic properties. This enables ID4FEED to offer innovative natural feed supplements rich in phytoalexins, which are secondary metabolites that form part of the defense arsenal of plants and also have beneficial properties for animals.

Biosis: A solution to counteract antimicrobial resistance

"Our goal is to develop additives from plants, rich in metabolites with antioxidant or antimicrobial properties, and having demonstrated beneficial properties for animals. We study interactions (Biosis) between the plant and its environment and how this influences the production of specific and beneficial metabolites for animals", summarizes François GAUTIER, founder and CEO of ID4FEED. This is an original strategy opening an alternative way to the use of antibiotics.

Antibiotic resistance is a growing global issue for both humans and animals, and global consumption of antibiotics in animals is estimated to increase by more than 60% by 2030 in countries such as China, Brazil, India or Russia *.

If nothing is done, 10 million deaths a year could be linked to antibiotic resistance in 2050, including 9 million in Africa and Asia, becoming the leading cause of death in the world **.

Faced with this immense risk, the animal nutrition industry is developing an

arsenal of alternative solutions. Among these, plant-based products *** could take a prominent place and reach a market of 700 million USD in 2021 ****.

ID4FEED, thanks to its original know-how and the establishment of a global distribution network, can claim to become one of the major players in this market.

INNOVATIVE FEED ADDITIVES

Andalusian roots

ID4FEED was created on June 1, 2017 and currently has offices in Annecy (headquarters), Madrid (headquarters of historical investors) and Qingdao, China where it has a mixing unit for the Chinese market. ID4FEED relies on the technical support of the Spanish company BORDAS, one of the European leaders in the production of plant extracts and essential oils based in Seville. With 16 distillation towers, the BORDAS plant is dedicated to plant extraction and since 1922 the company has been promoting citrus fruit and also aromatic plants such as rosemary and oregano, lavender, marjoram, sage and thyme.

Beyond BORDAS on which ID4FEED relies both technically and logistically, ID4FEED has developed a network of other partners specialized in plant production and extraction in France, the United States and in Asia.

* Prof. Peter R. FERKET, Poultry Department of North Carolina State University, 4th IHSIG Symposium, São Paulo-October 2015

** Review on antimicrobial resistances,

<https://amr-review.org/2016>

*** <http://www.pewtrusts.org/en/research-and-analysis/reports/2017/07/alternatives-to-antibiotics-in-animal-agriculture>

****Feed Phytogetic Market; Market & Market 2018



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ID4FEED is present in Qingdao, China with a mixing unit

Strategic partnerships

In France and abroad, ID4FEED has developed partnerships with many universities such as Queretaro in Mexico or Minneapolis in the United States. In the south-east of France, ID4FEED relies on clusters of scientific and academic actors to reinforce its creativity and potential for innovation: TERRALIA competitiveness clusters, University of Avignon and the Vaucluse countries, University of Marseille, Veterinary School of Marcy l'Étoile, and the Center for Studies on Natural Substances of Lyon ...

At the commercial level, the company has developed a strong commercial network and has done a lot of registration work that allows it to commercialize its solutions globally.



ID4FEED customers are feed and premix manufacturers



A TEAM OF EXPERTS

One of the strong values of ID4FEED being research on interactions ("Biosis") between the environment, the plant, the animal and its microbiota, the company relies on three experts with complementary skills.

Michel MAGNIN

Technical and R&D Director
Expert in "Eubiosis"

Michel MAGNIN is a veterinarian with a PhD and has spent most of his career in the animal feed industry in technical, scientific, research and innovation positions with a strong specialization in the poultry sector. The management of the intestinal health of animals and the balance of the microflora is one of his many areas of focus.

"Plant-animal-microbiota interactions are still very far from having revealed all their secrets"

Camille ROZIER

R&D Manager
Expert in "Phytobiosis" and "Eubiosis"

"Plant-microorganism interactions offer considerable potential in agronomy"

Camille ROZIER holds a PhD in plant ecophysiology, phytochemistry and microbiology. She is specialized in the study of the impact of plant/phytobeneficial bacteria interactions (PGPR) on the primary and secondary metabolisms of the plant. Together with her team of R&D engineers, she is in charge of designing and monitoring scientific projects and is in constant interaction with the different actors and collaborators of ID4FEED.

François GAUTIER

General Manager
Expert in "Symbiosis"

Food industry and marketing graduate, François GAUTIER has worked throughout his career in the development and marketing of food and feed additives. For 20 years, he has been particularly active in the international marketing of feed additives based on encapsulated vegetable extracts. With his sales team, François GAUTIER aims to develop the most symbiotic partnerships possible with his clients and distributors.

"We are all united by the same passion from plant to animal"



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INNOVATIVE TECHNOLOGIES

Encapsulation makes it possible to release the active principles of plants at the right place in the digestive tract

Several innovative technologies constitute ID4FEED's know-how: plant stimulation or plant induction (see box), plant extraction techniques and the protection of plant actives by encapsulation.

"We are at the interface between plant extraction technology and galenics" summarizes François GAUTIER who adds that this multiple expertise of ID4FEED allows him to meet the needs of his customers (feed or premix manufacturers). In addition to induction and dynamisation ensuring maximum

bioavailability of the plant's active compounds, micronisation optimizes the contact area with intestinal epithelium. Finally, encapsulation makes it possible to preserve these micronized particles and to release them at the site of action in the gut.

ID4FEED also uses new and emerging techniques for the characterization of plant active ingredients, such as metabolomics, which allows detailed mapping of plant metabolites and all of its active ingredients, whether major or minors.

Induction of plants: Active molecules with increased potency

Induction or elicitation is the activation of a defense response in plants following the recognition of an elicitor linked to an aggressor (pathogen, environmental stressor, etc.). Elicitation is often referred to in the interactions between plants and pathogens. Elicitors can be biotic (of biological origin such as fungi, bacteria or viruses) or abiotic (UV treatment, drought, extreme temperature ...) and the response of plants is determined by many factors depending mainly on their genetic characteristics and their physiological stage.

In summary, a complex mechanism whose good understanding allows to establish protocols of induction of production of secondary metabolites of defenses (or phytoalexins). ID4FEED specializes in the induction of specific plant metabolites that have demonstrated beneficial effects on animal health and well-being. Therefore, the concentration of active ingredients and subsequent efficacy of new products can be very precisely optimized.

COUNTERACTING INFLAMMATION DUE TO OXIDATIVE STRESS

Red pepper cells (multiplied by 400), with chromoplasts containing carotenoids responsible for the red color

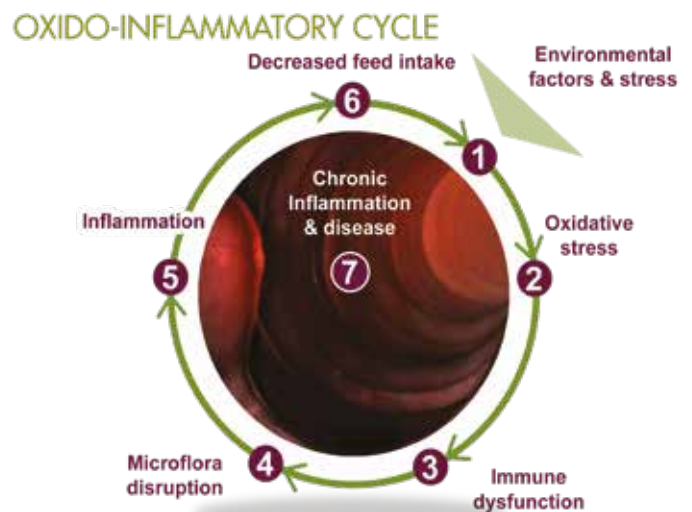
Source: Dr. Jim Billock (University of Central Oklahoma)

Functional additives developed and marketed by ID4FEED help to overcome the intestinal oxido-inflammatory cycle of animals. Farm animals are indeed subjected to multiple stressors including dietary (feed transitions, bacterial infection, and changes to the environment). This can lead to many consequences for the animal including oxidative stress, decreased immunity, flora disruption and inflammation of the mucous membranes.

Some plant extracts prove to be highly effective at reducing oxido-inflammation by acting at different steps of the cycle. Specifically, the ID4FEED offer consists of mixtures of plant extracts and plants rich in secondary metabolites, with or without essential oils. For example the ID PHYT CAPCIN range consists of an induced chilli powder (Capsicum) that naturally contains active substances (capsaicinoids) with interesting properties against inflammation and / or heat stress.

"There are as many anti-oxidant functions as there are plants, and some plants have more or less marked antimicrobial or anti-inflammatory properties," says Michel MAGNIN who adds that the potential of plants is immense if we know how to boost the effect of plant active ingredients to face the challenges of health and performance.

The oxido-inflammatory cycle of the intestine: multiple stressors with numerous consequences on the digestive tract





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