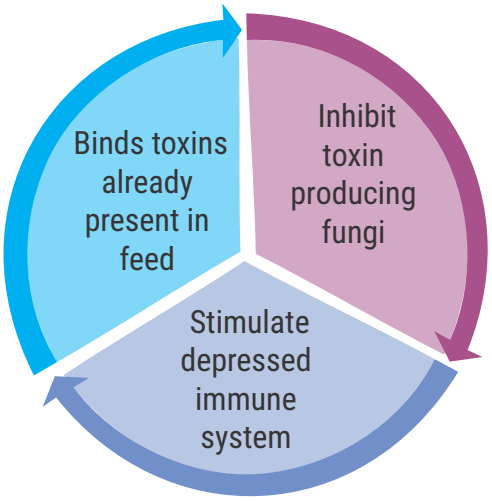
ZOVFACT Xpel

Innovative **Mycotoxin** Binder

Superior GREEN technology

Binary effect of inactivation of Zearalenone (Deoxynivalenol), Ochratoxin, Vomitoxin (DON), Fumonisin, Aflatoxin, Citrinin & Trichothecenes (T-2 toxin) Toxin and Immune enhancement

A Broad spectrum in-feed Mycotoxin solution, with a special formulated combination of yeast products and Tribomechanically Activated Clinoptilolite (TMAZ) in a balanced ratio that provides an effective way of controlling mycotoxicosis through creation of multiple binding sites to absorb the range of threatening mycotoxins.



Mycotoxins

Hidden threat to Poultry Feed

Approx. 50% of the world's grain supply is contaminated with Mycotoxins. (FAO, 2012)

Selected mycotoxins	Mycotoxin Producing fungi	
Aflatoxin	Aspergillus	storage toxins, polar, ~5% of all occurring mycotoxins
Ochratoxin A	Aspergillus	
Fumonisin	Fusarium sp.	field toxins*, non-polar, ~95% of all occurring mycotoxins
Zeralenone	Fusarium sp.	
Trichothecenes (DON, T-2)	Fusarium sp.	

** Under practical conditions, no poultry feed is completely free of Mycotoxins.

TRÈS BIEN BIOSYNTH

How does **ZOVFACT** Xpel work?

ZOVFACTxpel, a Broad spectrum in-feed Mycotoxin solution, with a special formulated combination of **CARBON-BASED ORGANIC POLYMER** Saccharomyces cerevisiae yeast products and Lactic acid bacteria and **SILICA-BASED INORGANIC COMPOUND** Tribomechanically Activated Clinoptilolite in a balanced ratio that provides an effective way of controlling mycotoxicosis through creation of multiple binding sites to absorb the range of threatening mycotoxins.

1. CARBON-BASED ORGANIC POLYMER Saccharomyces cerevisiae yeast products and Lactic acid bacteria

Mechanism of Binding:

Mannan Oligo Saccharides (MOS):

Mannan is present in the inner side of the cell wall of Saccharomyces cerevisiae, yeast which is glucan-rich. Yeast gluco-mannan showed high affinity for aflatoxins (75 to 90%) in vitro as well as in vivo and is widely used for detoxification of aflatoxins in poultry birds.

* Adhesion most important Pathogenic bacteria
* Adhesion mycotoxins (Zearalenone, T-2 and Deoxynivalenol)
* Stimulation adaptive immunity similar to Clinoptilolite

B-D-glucans:

It has recently demonstrated that the β-D-glucan fraction of yeast cell is directly involved in the binding process with ZON, and that the structural organization of β-D-glucan modulates the binding strength.

Efficacy: Based on in vitro assays, this glucomannan (GMA) binder has shown to effectively bind to:

* DON * T-2 Toxin * ZON * OTA * AFB1

Mechanism of Immune response:

Inclusion of purified yeast -glucan have been shown to stimulate phagocytosis, bactericidal killing and oxidative burst in chickens.

Two Major Components of Immune System

* Innate Immune Response * Acquired Immune Response

ß-glucan works to activate both components of the immune system.

In the Innate Immune system, -glucan binds with macrophages, activates and increases their availability to identify and destroy foreign organism.

Lactic Acid Bacteria (LAB):

LABs are gram-positive, catalase-negative, non-sporulating, usually non-motile rods and cocci that utilize carbohydrates fermentatively and form lactic acid as major end product.

These bacteria are mainly divided into four genera:

Lactobacillus Spp, Pediococcus Spp

***Poultry is very resistant to ZEARALENONE**

TRÈS BIEN BIOSYNTH

Working **Principle** of **ZOVFACT** Xpel

Mechanism of Binding:

The interaction mechanism between LAB and mycotoxins is thought to be similar to the interactions involved in adsorption by GMA.

The polysaccharide components (glucans and mannans) are common sites for binding, with different toxins having different binding sites.

2. Silica-based Inorganic compound : Tribomechanically Activated Clinoptilolite

Clinoptilolite is a natural zeolite comprising a micro porous arranged of silica and alumina tetrahedral.

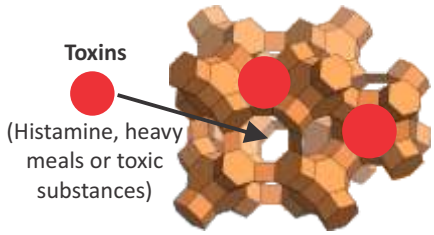
Clinoptilolite, a magnet for toxic matters.

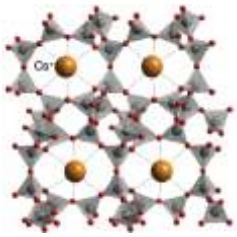
Clinoptilolite crystals have a hollow framework with numerous tunnels and pores evenly spaced out creating powerful absorbing capacity due to vast surface area resulting in molecular absorption capability.

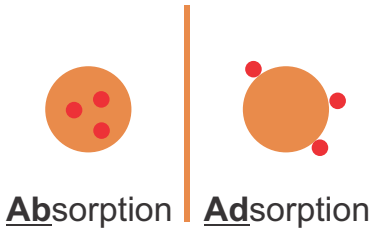
Due to Clino's unique crystalline structure physical and chemical, it has two outstanding properties

A. Absorption

B. Cation Exchange Capacity







ABSORPTION: Assimilation of molecular species throughout the bulk of the solid or liquid is termed as absorption. It is bulk phenomenon.

ADSORPTION: Accumulation of the molecular species at the surface rather than in the bulk of the solid or liquid is termed as adsorption. It is a surface phenomenon.

Powerful negative charges (ion exchange power):

"Remove heavy metals, Dioxins (Chlorinated hydrocarbons), PCB's (Ploychlorinated byphenyl), herbicides, radioactive particles and some viral particles from the body in a process known as cation exchange".

Mechanism of Immune response:

Tribomechanically activated Clinoptilolite (TMAZ)

Particles smaller than 5 micron are taken up by M cells or Dendritic cells (DC) in intestinal wall.

They are then transported to the lymph nodes where they stimulate B cells for improved antibody production.

*Irreversible binding of polar aflatoxins and $Nh4^{+}$

*Anti-caking effects due small particle size

*Helps Calcium uptake in the intestines.

***Poultry is very resistant to ZEARALENONE**

TRÈS BIEN BIOSYNTH

Usage and Administration of ZOVFACT Xpel

0.5-2.5 Kg/MT of complete Feed.

* Or as specified by nutritionists or veterinarians.
* Mix into Feed according to the level of mycotoxin contamination

	Low Level	ZOVFACT Dosage	Medium Level	ZOVFACT Dosage	High Level	ZOVFACT Dosage
Aflatoxins	< 80 ppb	0.5 kg/MT	80-300 ppb	1 kg/MT	> 300 ppb	2.0 - 2.5 kg/MT
Deoxynivalenol	< 250 ppb		250-1000 ppb		> 1000 ppb	
Fumonisin	< 250 ppb		250-1000 ppb		> 1000 ppb	
T2	< 150 ppb		150-400 ppb		> 400 ppb	
Ochratoxin	< 80 ppb		80-500 ppb		> 500 ppb	
Zearalenone	< 50 ppb		50-300 ppb		> 300 ppb	

Physical Characteristics

Colour	Beige
Odour	Stable yeast aroma
Purity	No foreign matter
Appearance	Powder

Shelf Life: 18 months from Date of Production.

Packing: 25 Kg Paper Bag with polyethylene liner.

Storage: Keep in cool, dry place, sealed and away from sunlight.

Additional information:

Saccharomyces cerevisiae live yeast was shown to reduce the detrimental effects of aflatoxin in broiler diets (Stanley et al., 1993).

A clinoptilolite was effective in reducing the effects of aflatoxin in quail (Parlat et al., 1999).

FEATUERS

* Bind wide range of mycotoxins.
* Low binding affinity for vitamins, minerals and other nutrients, because of tiny crystal pores and weak polarity nature of feed.
* Stable during processing and storage.
* Environmentally friendly after excertion.

A Product of :

TRÈSBIEN BioSynth

EURO Certification (UK)Ltd.

ISO 9001:2015

TRÈSBIEN BioSynth Pvt. Ltd.
B-204, 2nd Floor, Turning Point, C.H.S. Ltd. Sector-1,
Vasant Nagri, Vasai (East), PIN : 401208, Mumbai, INDIA
Email : admin@tresbienbiosynth.com Web: www.tresbienbiosynth.com
Customer Care No: +91 7900171425

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