



BioBon

Mycotoxin risk solution



Comprehensive protection for animals
Selectively adsorbing mycotoxins only



Yeast For Animal Nutrition

ANGEL YEAST CO., LTD.

Description

BioBon is an effective broad-spectrum product manufactured by optimum selection of yeast as raw material, adoption of advanced purification technology, special enzymolysis, as well as construction and activation of yeast cell wall. It strengthens the advantages of adsorption sites in the yeast cell wall and possesses excellent adsorption effect in the toxins that have weak polarity such as zearalenone(ZEN) and vomitoxin. Moreover, the product contains aluminosilicate that is modified on the basis of American technology, thereby has the powers to release more space between layers and has stronger adsorption capacity for aflatoxin(AFT).

Ingredients

The main ingredients of BioBon are modified yeast cell wall, modified montmorillonite, mannan oligosaccharide and β -glucan.

Features

- Triple protection for animals by detoxification, deintoxication and immunostimulation.
- Selectively adsorbing mycotoxins, except for nutrients.

Broad-spectrum, efficient and specific adsorption of non-polar mycotoxins except for nutrients

Modified yeast cell wall is processed specifically to expose the adsorption layer fully; moreover, a lot of hydroxyl of yeast cell wall combines with lactones and ketones groups of nonpolar mycotoxins such as zearalenone(ZEN) and vomitoxin(DON) , which forms polysaccharide - toxin complexes via hydrogen bond and Van der Waals force. Spiral space structure of yeast cell wall closely combines with variety of mycotoxins for firm adsorption. Owing to the specific space structure, BioBon has little adsorption with amino acids, vitamins and

Special modifying technology for aluminosilicate makes the adsorption with aflatoxin more powerful

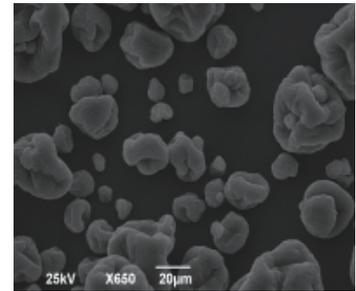
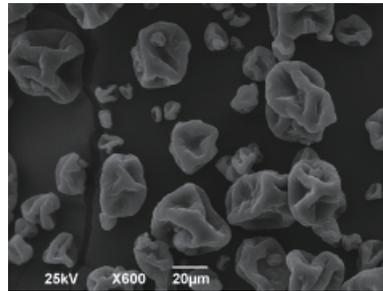
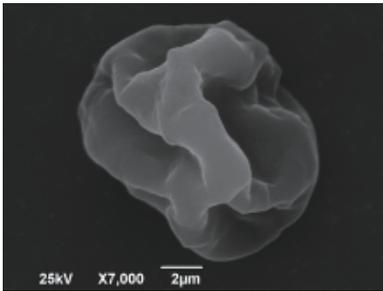
Natural mineral resources is selected as one of the ingredients of BioBon, and then purified technologically, which thereby have unique flaky and needle-like structures like specific nests as well as enormous specific surface area, and can strongly absorb polar mycotoxins (e.g., aflatoxins). Modified aluminosilicate has a strong capacity of cation exchange to adsorb NH_3 , thus decreasing NH_3 emission of animal feces.

Helping to enhance immunity and bind pathogens

As a part of yeast cell wall, mannan-oligosaccharide (MOS) is able to prevent pathogens from damage to the cell wall of intestinal mucosa based on the recognition of pathogens, and combine with the pathogens to expel them out of the body, thus protecting animal health. Moreover, MOS contributes beneficial bacteria in intestinal tract of animal to proliferation to protect animals.

β -1,3 glucan has ability to promote the development of immune organs, improve the detoxification of liver and reduce the inhibitory effect of mycotoxins for immune systems.

Adsorbing a variety of toxins, without affection by intestinal pH



Functions

Helping to effectively adsorb a myriad of mycotoxins such as aflatoxin (AFT), zearalenone (ZEN), fumitremorgin (FUM), T-2 toxin, ochratoxin (OCT), thus to protect animals from the toxins.

Protecting livers, stimulating the activity of immune cells, and in turn boost the resistance to disease and improve health of animals.

Adsorbing ZEN specifically, which can reduce reproductive failure, abortion and pseudo estrus and increase survival rate of animals.



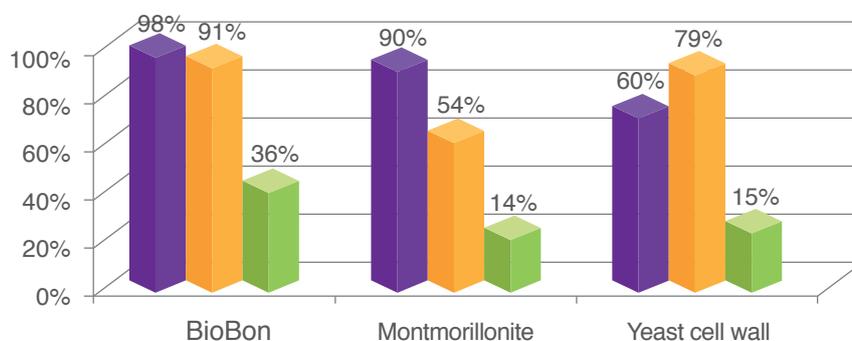
Advantages

- Broad-spectrum, efficient and thorough detoxification.
- Leading technology: awarded two international patents.
- Advantages of raw material: the technology of improved yeast cell wall devoted to the stability of product

Application (*in vitro*)

Adsorption rate of different mycotoxins by BioBon was superior to other ordinary adsorbents.

Adsorption rate



- Aflatoxin (AFT)
- Zearalenone (ZEN)
- Vomitoxin (VOM)

The *in vitro* experiment indicated that the absorbing rate of AFT and ZEN by BioBon was higher than common montmorillonite and yeast cell wall.

Note: Experiment was carried out in Missouri University in 2009.

Adsorption of mycotoxins by BioBon was better than other adsorbents at different pH.

Table 1. Adsorbing rate of 4 different mycotoxin adsorbents for in vitro adsorbing of mycotoxins at pH 3

Mycotoxins	BioBon	Composite products 1	Common Yeast cell wall	Composite products 2
AFTB1	98%*	98%	54%	100%
ZEN	91%	84%	79%	71%
DON	36%	14%	25%	17%

Note: * means the average value of two results, and the following * means the same.

As shown in Table 1, the adsorption rate of AFT and ZEN by BioBon was higher than other adsorbents at pH 3.

Table 2. Adsorbing rate of 4 different mycotoxin adsorbents for adsorbing of mycotoxins in vitro at pH 6.5

Mycotoxins	BioBon	Composite products 1	Common Yeast cell wall	Composite products 2
AFTB1	100%*	98%	54%	100%
ZEN	91%	82%	79%	71%
DON	14%	20%	25%	17%

As shown in Table 2, the adsorption rate of AFT and ZEN applied BioBon was higher than other adsorbents at pH 6.5.

Limited adsorption in nutrients in feed (in vitro)

Table 3. BioBon has little adsorption in nutrients

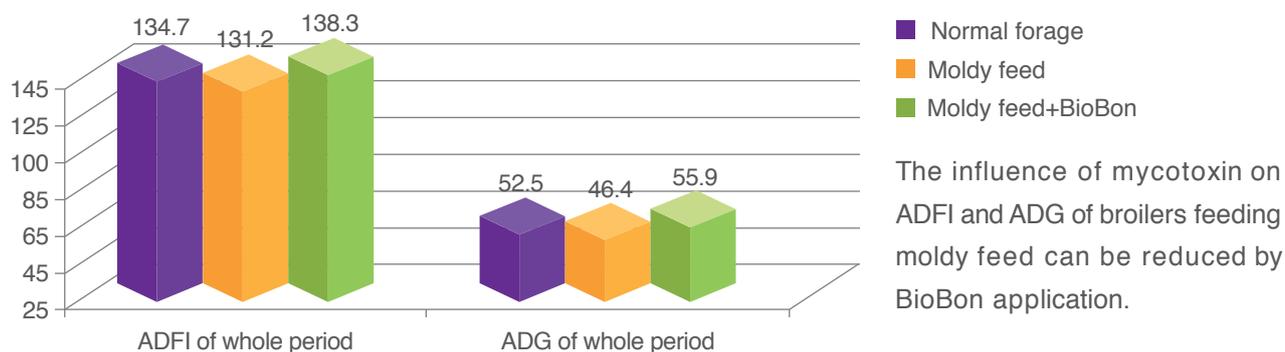
Sample	BioBon	Competitive products 1	Competitive products 2	Competitive products 3
Cu ²⁺ (3.5 mg/mL)	6.38%	24.95%	39.52%	22.66%
Fe ²⁺ (30 mg/mL)	2.66%	3.02%	22.40%	11.23%
Mn ²⁺ (7 mg/mL)	13.70%	26.55%	16.01%	28.91%
Zn ²⁺ (30 mg/mL)	0.6%	7.95%	9.52%	26.7%
VB ₂ (2 mg/mL)	/	/	32.13%	28.86%
L-lysine (50 mg/mL)	2.03%	5.47%	4.98%	9.70%
L-methionine (50 mg/mL)	/	/	/	/

As shown in Table3, the results showed that the adsorbing rate of Cu²⁺ Fe²⁺ Mn²⁺ Zn²⁺ and L-lysine by BioBon was quite low and had no adsorption inVB₂ and L-methionine



Application (*in vitro*)

The good detoxification effects of BioBon on moldy feed in Broilers



Significantly improving laying rate of laying hens, reducing mortality and the proportion of broken eggs

Table 4. The effects of different mycotoxin adsorbents on the laying performance of laying hens

Group	Laying rate, %	Broken and weaken eggs ratio, %	Mortality elimination rate, %	ADFI, g	Feed / egg ratio
Moldy feed	79.27±8.38 ^a	1.03±0.46	3.48±2.43	115.61±6.63	2.27±0.29
BioBon	86.53±7.62 ^b	0.75±0.58	2.14±0.56	123.47±4.72	2.21±0.13
Montmorillonite	79.93±8.45 ^a	0.82±0.46	2.95±1.67	117.73±5.89	2.29±0.38

The effects of different mycotoxin adsorbents on the laying performance of laying hens

BioBon increased milk yield and milk quality of dairy cow.

Table 5. The effects of BioBon on production performance of dairy cow.

Group	Milk yield, kg	Fat content, %	Protein content, %	Somatic number (×10 ³ /ml)
Control group	13.15	4.01	3.23	721.21
BioBon	14.23	4.15	3.27	529.84

As shown in Table5, BioBon improved milk yield of dairy cow, and improved the milk composition, and decreased the occurrence of mastitis.

Direction for use

Fully mix with compound feed according to the dosage indicated in Table 6.

It can also be pro rata used in premix, concentrate feeds or concentrate supplement. The efficacy will not be affected by the feed processing like granulation and inflation.

Table 6. Dosage in compound feed

Species	Slightly polluted feed	Seriously polluted feed
Livestock	0.5-1kg/t	1-2kg/t
Cow	10-15g/head/day	20-30g/head/day
TMR	10kg/t	

Package and storage

Package 25kg/bag with polyethylene liner.

Storage The shelf life is 24 months, please keep in a cool and dry place.

Attentions Please use up once it been opened or bind tightly after using.

Remarks

This product should be preserved at the cool and dry place, used as quickly as possible after being opened and packed tightly after use. The use throughtout feeding time can make best effect.