



Binding efficacy analysed for more than 60 commercial products!

VALUETOX

Unique service to accompany the Excential toxin binder range

Mycotoxin contamination in feed negatively affects animal health and performance. Therefore, the inclusion of a broad spectrum mycotoxin adsorbent in the feed to alleviate this threat is generally considered as the way to go. However, not all commercial mycotoxin binders function equally good in adsorbing mycotoxins. Analysing the binding efficacy of your mycotoxin binder is therefore considered an essential step towards fighting the threat of mycotoxins in feed!

WHY BINDING EFFICACY?

In collaboration with the **Centre of Excellence in Mycotoxicology and Public Health at the University of Ghent (Belgium)**, Orffa set-up an *in vitro* model to test different commercial mixtures on their capacity to bind mycotoxins (%). The model is based on liquid chromatography with tandem mass spectrometry (LC-MS/MS).



Mycotoxins included in the test are aflatoxins (AFB1, AFB2, AFG1, AFG2), fumonisins (FUMB1, FUMB2), zearalenone (ZEN), ochratoxin A (OTA), enniatin B (ENN B) and trichothecenes (DON, HT-2, T-2).

In order to resemble conditions throughout the entire gastrointestinal tract, the binding capacity of the compounds is tested at pH 3 (simulating the stomach) after which pH is raised to pH 7 (simulating the intestinal environment). After the LC-MS/MS, the binding efficacies (%) are calculated.

Figure 1: Example of results

Components - pH	% binding capacity						Q.C.*
	TOXBINBS A	TOXBINBS B	TOXBINBS C	TOXBINBS D	TOXBINBS E	TOXBINBS F	
DON pH3	32	11	20	44	6	28	94
	22	16	8	46	10	32	98
HT-2 pH3	49	18	70	52	17	39	98
	61	30	58	75	24	59	99
T-2 pH3	44	39	93	33	43	12	98
	32	25	85	41	28	19	98
AFB1 pH3	100	100	100	100	100	100	100
	99	99	100	100	100	100	100
AFB2 pH3	99	100	98	99	100	99	100
	98	99	99	97	100	98	100
AFG1 pH3	100	100	100	100	100	100	100
	99	100	100	98	100	99	100
AFG2 pH3	99	99	99	96	99	96	99
	96	98	100	84	96	91	100
FUM B1 pH3	16	94	98	0	96	0	97
	64	43	97	31	63	0	100
FUM B2 pH3	0	74	84	0	82	0	79
	82	62	99	70	77	35	99
OTA pH3	54	91	99	66	86	49	100
	19	22	68	19	33	5	100
ZEN pH3	78	76	100	52	63	30	99
	69	61	99	46	52	22	100
ENN B pH3	98	96	94	94	97	94	96
	96	98	100	96	100	96	100

(*): the positive control binder met the expected results

- <10%: no significant binding
- 10-49%: limited binding
- 50-89%: partial binding
- >90%: complete binding

VALUETOX SERVICE MODEL

Procedure:



Samples can be coded, to ensure independent results:



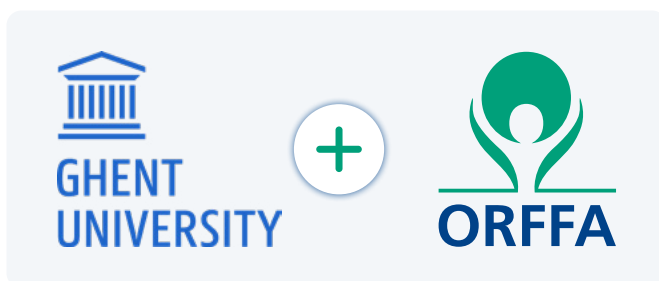
EXTENSIVE EXPERIENCE

Orffa has been involved in the *in vitro* comparison of binding efficacy for more than 60 commercial available mycotoxin products, including well-known premium products.

Results show how different commercial mycotoxin binders differ in their binding efficacy, allowing the customer to independently choose the best product.

VALUETOX SERVICE

- **Benchmark service** to compare efficacy of mycotoxin binders based on binding efficacy
- In **collaboration** with the **University of Ghent, Belgium**
- **Broad experience** with a wide range of commercial products
- **Independent evaluation** to support choosing the best mycotoxin adsorbent!



'In 2018, when we introduced Excential Toxin Plus and Excential Toxin A in the Philippines, we faced significant challenges. The market was saturated with various toxin binder products, both imported and local, from high-end to low-end brands. These established products were considered 'household names,' making it tough to gain market share. Additionally, larger companies offered marketing incentives like sponsorships, technical services, and after-sales support. To introduce our new products on the market, we implemented an effective strategy: blind in vitro tests using coded samples of our Excential toxin binders alongside customers' existing mycotoxin binders. The University of Ghent provided official reports, and our product's success was evident when customers started ordering.'

Joan Serrano, Country Manager Philippines

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