

YIDUOZYME X-3002

Compound Protease





1. Benefits of protease in animal feed

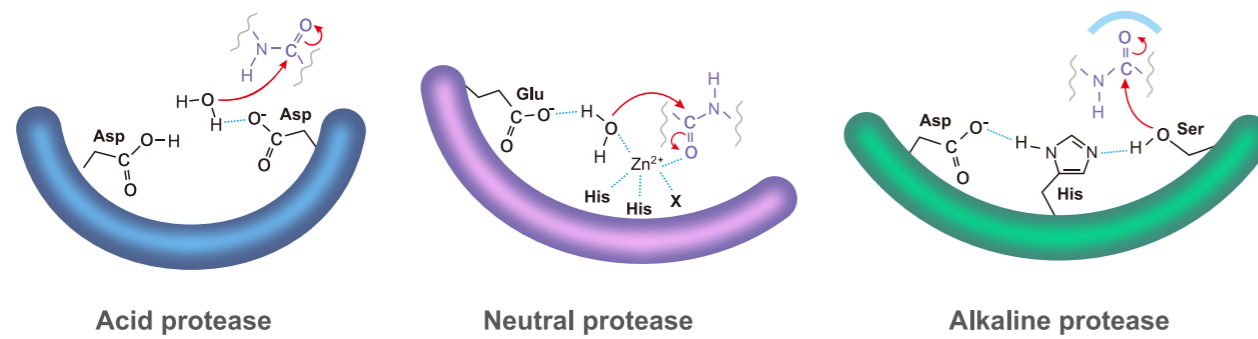
(a) Improves feed protein digestibility

Soybean is an important and expensive ingredient in feed diet, which accounts for a high cost of animal feed. However, the digestion of soybean is usually not complete due to insufficient endogenous protease in the GI tract. Supplementation of exogenous protease can thus significantly improve the protein digestibility.

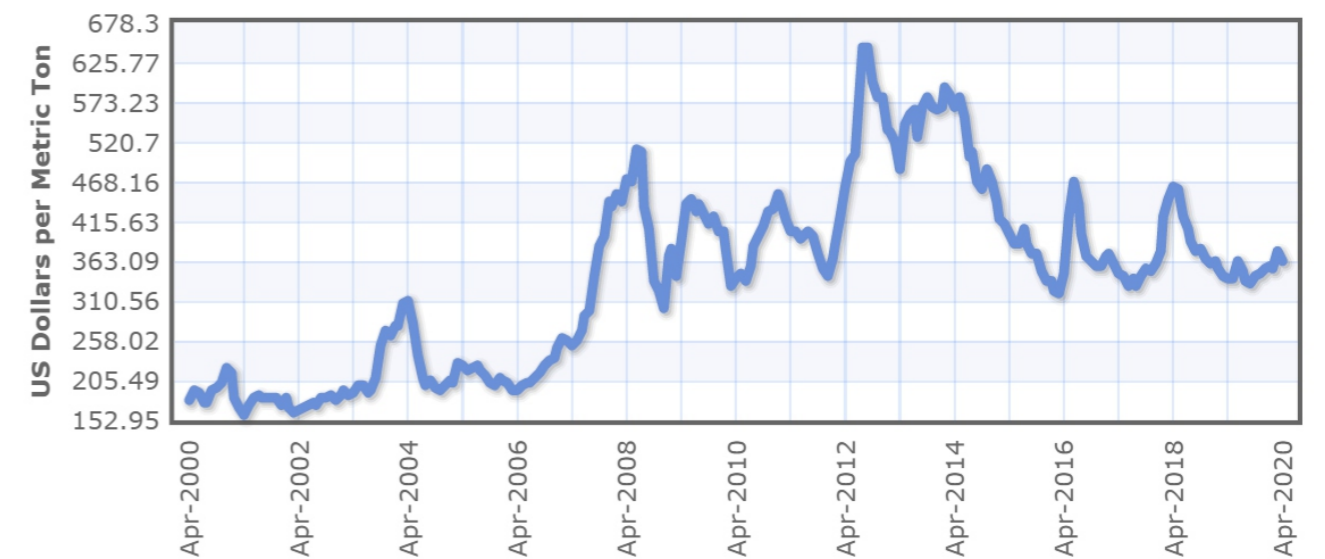


VTR COMPOUND PROTEASE X-3002

X-3002 protease from VTR improves protein digestibility in the whole gastrointestinal tract through a combination of acid, neutral and alkaline proteases which have 3 different active sites.



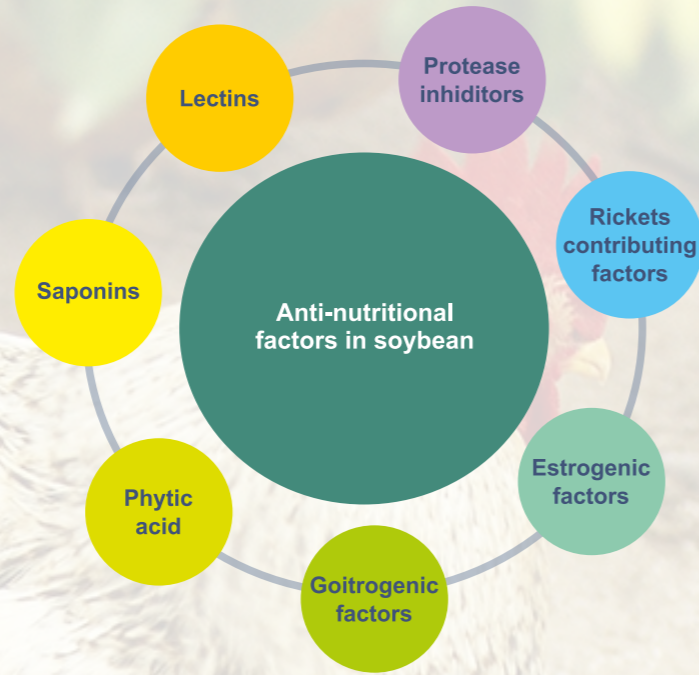
Variation of soybean meal price



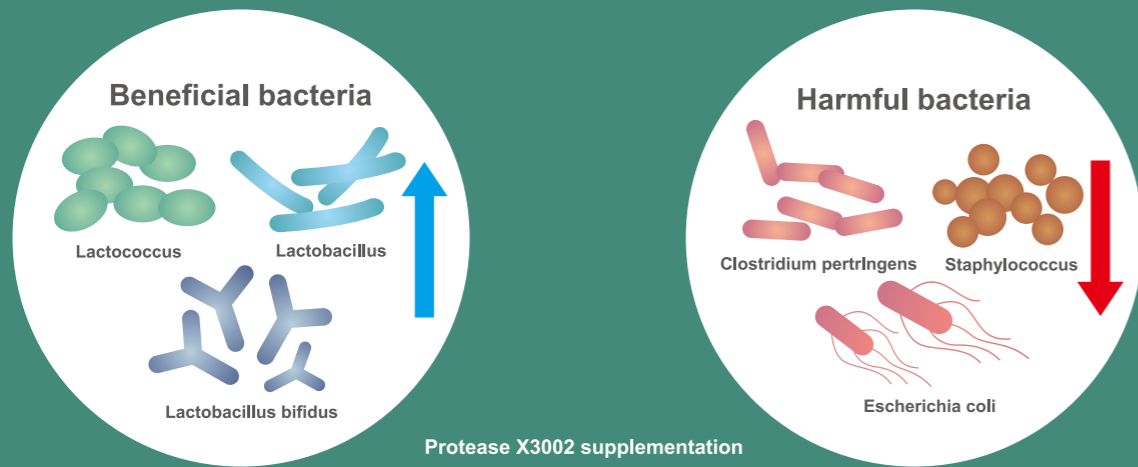
Source: IndexMundi

(b) Helps intestinal health

Soybean also has negative effects on animal health because it contains some anti-nutritional factors and allergenic proteins. In addition, the undigested protein can be a resource for proteolytic bacteria fermentation, and therefore leads disorders, wet litter and reduction of production performance. Exogenous protease supplementation can reduce these negative effects of anti-nutritional factors and optimize intestine microbiota composition.



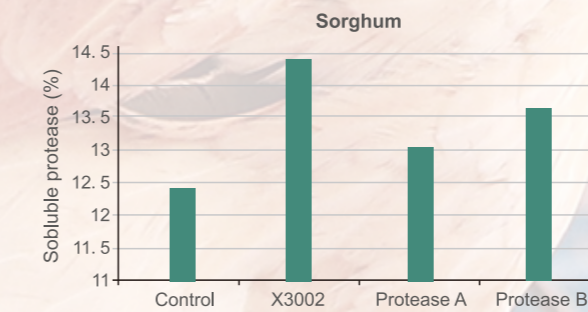
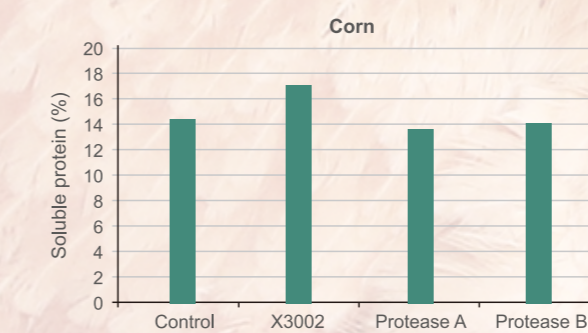
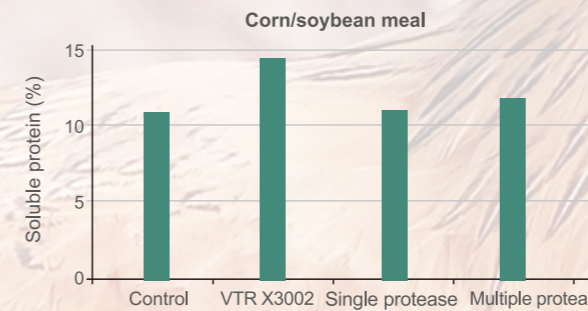
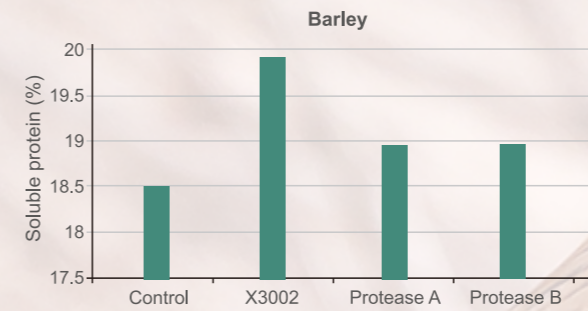
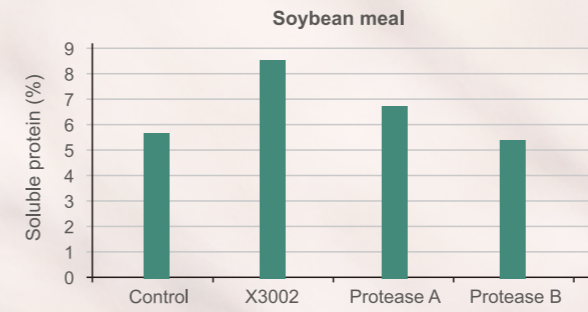
X-3002 compound protease modulates intestine microbiota composition



2. Advantages of X-3002 compound protease

- Synergistic effect with endogenous enzyme
- High activity in the whole gastrointestinal tract
- High tolerance to pepsin, trypsin and metal ions
- Excellent heat stability and storage stability

3. Enzymatic hydrolysis effect of X-3002 in Vitro





4. Application effects of Yiduozyme X-3002 on broiler chickens

Compared with control group, the broiler feeding diet with X-3002 significantly increased the final BW 2.89% ($P < 0.05$) and ADG 3.04% ($P < 0.05$) from 1- 21 days. The growth promote effect of X-3002 was excellent than competitor protease.

Effects of Yiduozyme X-3002 on growth performance of broiler chickens in 1-42 days

Items	Initial BW, g	Final BW, g	ADG, g	ADFI, g	F/G	Survival ratio, %
Control	40.3 ± 0.4	2389.7 ± 41.1 ^b	55.9 ± 1.0 ^b	87.2 ± 2.4	1.56 ± 0.03	96.67 ± 4.71
X-3002	40.4 ± 0.7	2458.5 ± 52.5 ^a	57.6 ± 1.3 ^a	88.7 ± 1.4	1.54 ± 0.02	98.50 ± 3.19
Competitor protease 2	40.3 ± 0.9	2417.2 ± 47.3 ^{ab}	56.6 ± 1.1 ^{ab}	87.0 ± 2.2	1.54 ± 0.03	97.50 ± 3.19

Note: ^{a,b}Means in a row with no common superscript differ significantly ($P < 0.05$)

Under 35°C heat stress, compared with signal protease and competitor compound proteases, the X-3002 had a better effect on broiler growth performance under heat stress.

Effects of Yiduozyme X-3002 on growth performance of broiler chickens in 1-21 days under heat stress

Items	Initial BW, g	Final BW, g	ADG, g	ADFI, g	F/G	Survival ratio, %
Control	40.4 ± 0.4	609.5 ± 4.6 ^c	27.1 ± 0.2 ^c	41.5 ± 0.8 ^b	1.53 ± 0.04	98.50 ± 1.73
X-3002	40.4 ± 0.7	647.3 ± 16.4 ^a	28.8 ± 0.8 ^a	43.6 ± 0.7 ^a	1.51 ± 0.02	99.25 ± 3.50
Competitor protease 1	40.5 ± 0.9	620.9 ± 6.0 ^{bc}	27.6 ± 0.3 ^{bc}	41.9 ± 0.8 ^b	1.52 ± 0.04	99.25 ± 1.50
Competitor protease 2	40.4 ± 0.6	620.8 ± 13.8 ^{bc}	27.7 ± 0.6 ^{bc}	42.5 ± 0.7 ^{ab}	1.54 ± 0.03	97.50 ± 3.32

Dosage & Usage

- Recommended Dosage: 300 g/t in complete feed. Dosage in concentrated feed or premix need to calculate according to ratio in complete feed.
- Please contact VTR's sales representatives for technical supports for formulation adjustment.

Precautions

- The product dosage is small, requires premix before adding into bulk ingredient.
- Avoid moisture and seal the package tightly after use.

Packaging, Transportation, and Storage

- Standard package: 25kg/bag.
- Keep away from sunshine and rain, forbid transport with poisonous and harmful material.
- Store in dry, ventilated and cool places.

Shelf Life

- 12 months after manufacturing date.