



B- TANNIN

B-TANNIN is an additive for animal nutrition containing a natural chestnut extract, rich in hydrolysable tannin.

Upgrading effect on the metabolic utilization of absorbed nitrogen & reducing urinary nitrogen

A trial on digestibility and balance of nitrogen has been performed in Milan (unpublished). 18 castrated male pigs, 153 Kg average weight, were divided into 3 groups, 6 animals each. Control group receive a diet at 14% crude protein; treated group received a diet at 12% crude protein, added with 0.53% of B-TANNIN.

Addition of B-TANNIN in growing pigs allows a better utilization of feed proteins: four points percentage more (39 versus 35%). B-TANNIN allows to fed pigs with a diet at low protein level; in Milan trial a diet at 12,3% of Nitrogen has been used instead of 14,2%.

The use of B-TANNIN guarantees a low nitrogen content (volatile nitrogen substances) in urine and better-quality excreta. The presence of B-TANNIN did not alter the palatability of the feed.

Without B-TANNIN
gains at 35% (23.5*100/67.2)

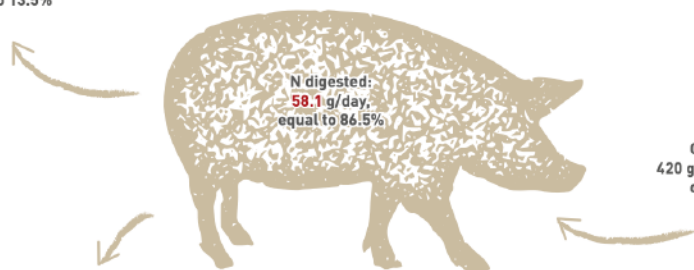
	Entry (g/day)	Exit (g/day)	Gain (g/day)
Feed	67.2		
Feces		9.1	
Urine		34.6	
Retained			23.5
Total	67.2	43.7	23.5

With B-TANNIN
gains at 39% (23.0*100/58.5)

	Entry (g/day)	Exit (g/day)	Gain (g/day)
Feed	58.5		
Feces		9.4	
Urine		26.1	
Retained			23.0
Total	58.5	35.5	23.0

Without B-TANNIN

N undigested:
9.1 g/day, equal to 13.5%



Crude protein:
420 g/day, or 67.2 g/day
of nitrogen (N)

N urinary:
34.6 g/day, equal to 59.6%
of the digested

Recommended instruction for use in final feed:

Piglets post weaning: 1.3 – 1.8 Kg/ton
Grower: 0.5 – 1.0 Kg/ton
Finishing: 0.30 – 0.75 Kg/ton

Diarrhoea control

Numerous stress factors are associated with weaning, including social, environmental and dietary changes. These stress factors can alter the homeostasis of intestinal microflora, rendering young piglets more inclined to gastrointestinal tract infections. The etiology of post-weaning diarrhea is multifactorial, although it is commonly associated with the proliferation of beta-gemolytic enterotoxigenic *Escherichia coli* (ETEC), sometimes in association with rotavirus infections. Chestnut tannin extract is a good candidate for decreasing post weaning diarrhea because it already possess in vitro bactericidal activity on several bacteria.

The addition of hydrolyzed tannins reduced the average fecal score, the percentage of piglets in diarrhea and the duration of diarrhea whereas feed intake and average daily gain are unaffected.

[Girard et al., 2018].

B-TANNIN controls diarrhoea also through its antispasmodic effect (it slows the peristaltic movements of the intestine).

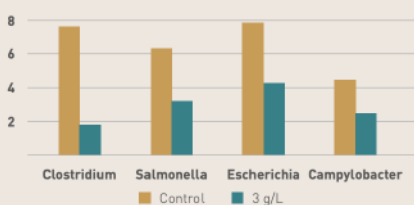
[Budriesi et al., 2010].

Intestinal microbiota control

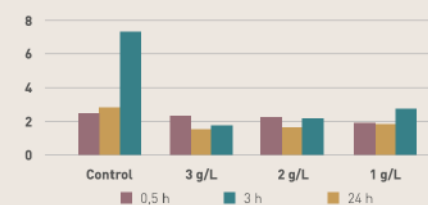
B-TANNIN interferes with the development of bacteria and parasite in gut because it complexes membrane protein altering the permeability of the cellular membrane. B-TANNIN antimicrobial activity was tested in vitro on *Salmonella typhimurium*, *Escherichia coli*, *Campylobacter jejuni* and *Clostridium perfringens*. Not all the four bacterial colonies reacted to B-TANNIN in the same way: *Escherichia coli* resulted the least sensitive and *Clostridium perfringens* the most sensitive.

[Antongiovanni, M., et al., 2018. Tannin as an antimicrobial agent. World Poultry Science Journal]

B-TANNIN on the in vitro growth of the four bacteria at 24 hours



B-TANNIN on the in vitro growth of *Clostridium perfringens* cultures



Antioxidant properties

B-TANNIN is a polyphenol and exhibits greater antioxidant activities than simple phenolics: the number of hydroxyl groups and the degree of polymerization of tannin are considered to be correlated with their ability to scavenge free radicals. Antioxidant activity has been evaluated in vitro by using Folin-Ciocalteu reagent. The results are expressed as total phenol content, measured as GAE (Gallic Acid Equivalents) which is considered to have an excellent correlation with the in vitro antioxidant activity.

FOLIN-CIOCALTEU (GAE equivalent, mg/g)

B-TANNIN	57.0
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[Campo et al., 2015. Hydrolysable Tannins from Sweet Chestnut Fractions Obtained by a Sustainable and Eco-friendly Industrial process. Nat. prod. Commun. 11:409-415].

Technical data sheet

B-TANNIN is an additive for animal nutrition. It is a natural chestnut extract, rich in hydrolysable tannin. Chestnut tannin is obtained by water extraction from chestnut wood, by an environmentally sustainable unique process.

CHARACTERISTIC	METHOD OF ANALYSIS	MEASURE UNIT	SPECIFICATION
Description	Visual	/	Free flowing dark brown powder
Tannin content	ISO 14088	% w/w	Min 75
pH	Internal method n. LAB 004		3.2 ±0.2

[Campo et al., 2015. Hydrolysable Tannins from Sweet Chestnut Fractions Obtained by a Sustainable and Eco-friendly Industrial process. Nat. prod. Commun. 11:409-415].