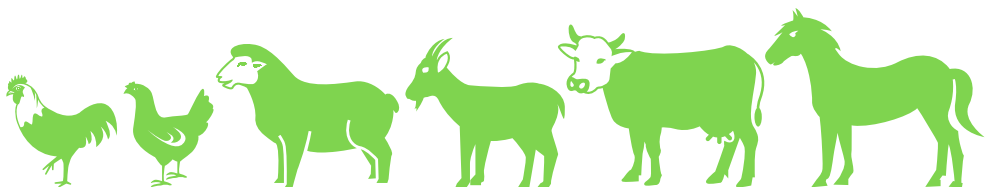
B-VET
FEED & CARE

B-LAURIN 45 feed additive

α-MONOLAURIN helps the animals in the fight against pathogens

B-LAURIN is an α-monolaurin acid on a pre-gelatinized starch carrier containing a minimum of 45% α-mono laurin in the form of highly digestible and bioavailable free-flowing dust free pellets of 1 mm.
The unique characteristics of this carrier maximizes the dispersion of α-monolaurin, allowing full availability in the GI-Tract, even in animals with a short GIT.

α-mono laurin acid strengthens the immune system against fat coated viruses, bacteria and microbes.
This provides the animal with an immense advantage in its fight against pathogens.



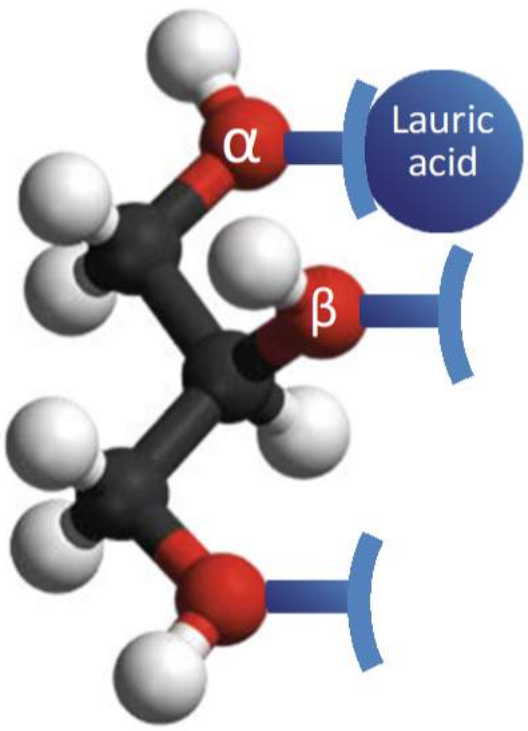


Figure 1. The esterification of glycerol and lauric acid on the α-position

UNIQUE PROPERTIES OF α-MONOLAURIN

Lauric acid is a natural ingredient found in coconut. Alpha-monolaurin is manufactured by esterifying glycerol and lauric acid (Figure 1).

α-monolaurin is now widely used in the agricultural business for its strong natural anti-bacterial and anti-viral properties. The reason we call it α-monolaurin is because the lauric acid bonds to the glycerol in the α-position. Other combinations are possible but the α-monoglycerides have some specific properties.

20 TIMES STRONGER

α-monolaurin is the monoglyceride of lauric acid, attached to the first position of the glycerol molecule and is 20 times stronger as the di- and tri-glycerides of lauric acid.

GLYCEROL AS BACKBONE

Monoglycerides are selfemulsifying in water because their amphiphilic compounds possess both lipophilic properties due to their fatty acid tail- and hydrophilic properties, due to their hydrophilic backbone (glycerol). As a result thereof, they are active in virtually all environments, like water, feed, stomach, the intestinal tract and even in blood.

EFFECTS OF THE α POSITION

α-monolaurin's lauric acid is bonded to position α (alpha) of the glycerol and therefore less susceptible to be broken down by lipase and esterase. Its functionality will endure throughout its biological life in all sections of the GI-tract, and in the blood stream.

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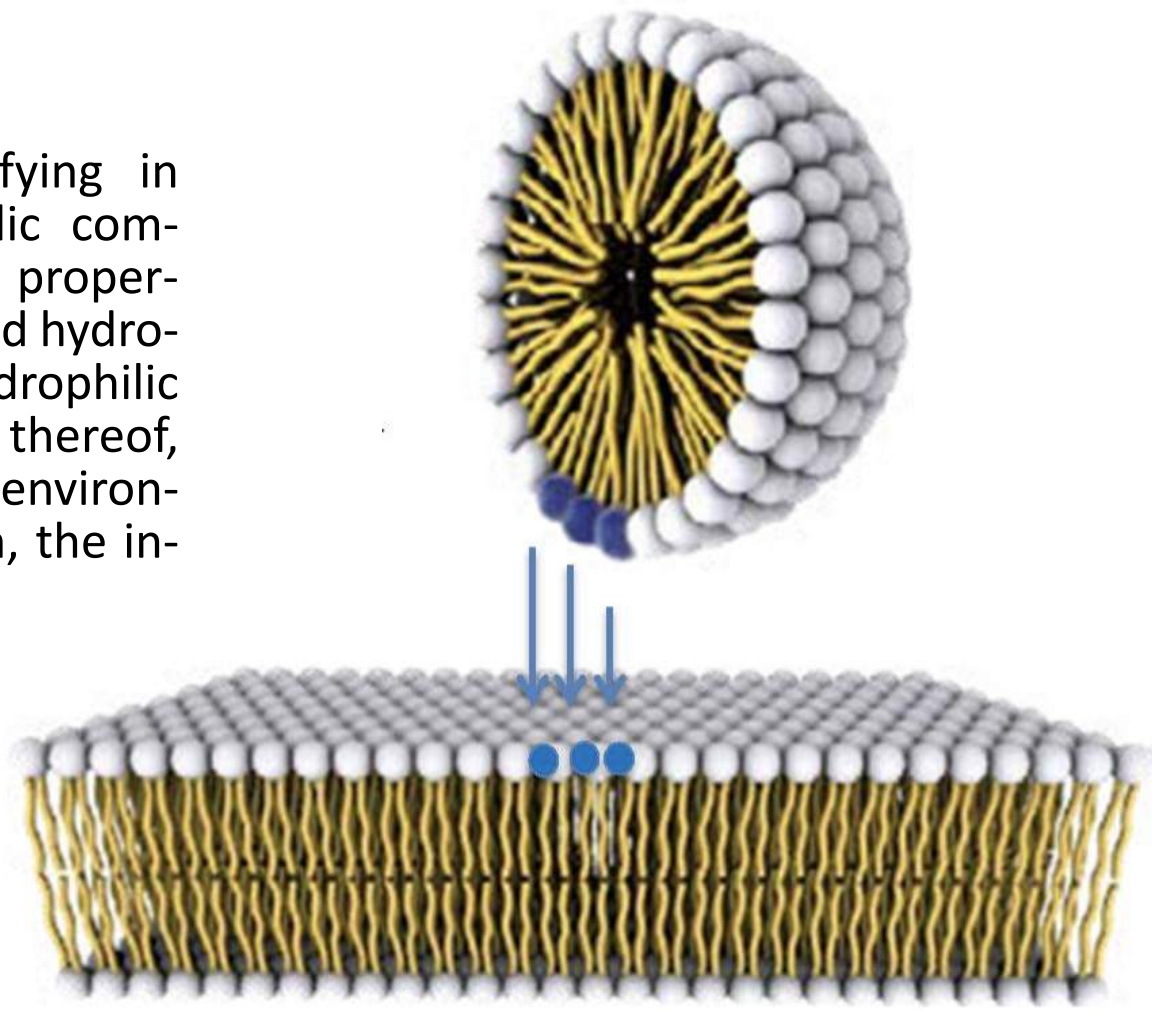


ANTIVIRAL EFFECT

Without an intact membrane, gram-positive bacteria and fat-enveloped viruses can not properly attach and invade a host cell. Therefore, infection and multiplication has become impossible.

There is also a strong suspicion that interference of alpha-monolaurin with the membrane modifies the trans-membrane signal transfer, inhibiting the excretion of harmful exoproteins. Table 1 below demonstrated the antiviral effect of several alpha-monoglycerides. Among the 6 components in the test, alpha-monolaurin has the strongest effect on the reduction of virus titre. This can be explained by its stronger amphiphilic effect.

Monoglycerides of C8 and C10 behave more hydrophilic and monoglycerides of C18 behave lipophilic. The size of lauric acid (12 carbons) gives the alpha-monolaurin the proper lipophilic/hydrophilic balance for an optimal effect on bacteria and virus.

Monoglycerides		Concentration	(mg/ml)	Reduction of virus titers VSV	HSV-1
Monocaprylin	Caprylic acid	C8	2	>4,0	ND
Monocaprin	Capric acid	C10	0,5	>4,0	>3,7
Monolaurin	Lauric acid	C12	0,25	>4,0	>3,7
Monomyristin	Myristic acid	C14	2	3,0	ND
Monolein	Oleic acid	C18:1	1	2,3	ND
Monolinolein	Linoleic acid	C18:2	0,25	>4,0	ND

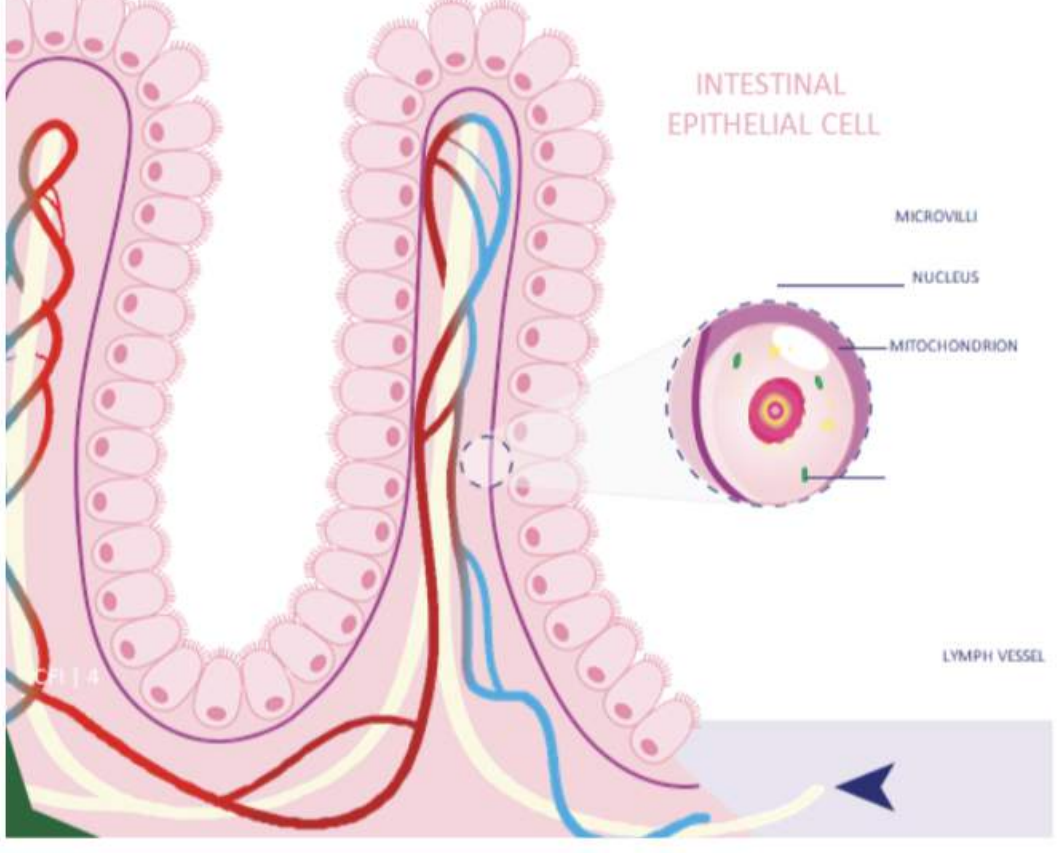
Table 1. Viral inactivation by incubation with monoglycerides at 37C for 30 minutes. Halldor Thormar et al. in 1987

It is very difficult for the bacteria and viruses to develop a resistance mechanism, as all these modes of action are physical and do not -like for most antibiotics- require a chemical recognition. Up till now, the bactericidal and virucidal effect of α-monolaurin showed no build-up of any resistance.

Research has also shown that α-monolaurin has a much stronger anti-bacterial effect when compared to its corresponding free fatty acid. Table 2 below compares the MIC-values of lauric acid to those of α-monolaurin. The superior effect is again explained by the amphiphilic properties

	Lauric acid	α-monolaurin	Ratio
Streptococcus	0,249	0,09	3
Staphylococcus Aureus	2,49	0,09	28
Staphylococcus Epidermidis	0,49	0,09	5
Micrococci	0,624	0,09	7

Table 2. compares the MIC-values of lauric acid to those of α-monolaurin. Halldor Thormar et al. in 1987



Appearance	Micro granulate 1.0 -1.2 mm
Odour	Deodorised
pH	<11

MOST EFFECTIVE MCFA

α-monolaurin occurs naturally in the milk of mammals up to levels of 500 ppm. We were all fed α-monolaurin through mothers milk, building a defense mechanism for infants. It is therefore that, among all feed additives used in our industry, α-monolaurin is the only one that will have an effect on weaned piglets when administered through sows milk, together with colostrum.

α-monolaurin is an effective solution to help the young animal in the fight against viral and bacterial systemic diseases.

B-VET
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...because healthy animals generate healthy profits

B-LAURIN 45

feed additive

α-monolaurin is used to prevent the occurrence of streptococcus in piglets and help to limit the development of PRRS. In poultry, α-monolaurin is recommended to limit the effect of necrotic enteritis and administered against viral diseases such as Newcastle disease and/or infectious bronchitis. In dairy cows is reduces mastitis.

General notes:

Product safety can only be guaranteed with adequate storage. Close packaging firmly after use. Store in a cool, dry place away from light.

Presentation:

20 kg paper bag with plastic inner liner.

Use:

For use in feedstuffs only.

Application & dosage:

To be mixed in the feed.

Pigs:	1,0 – 4.0 kg/mt feed
Poultry:	0.5 – 4.0 kg/mt feed
Calves:	0.5 – 2.0 kg/mt feed
Lambs:	0.5 – 2.0 kg/mt feed
Aquaculture:	0.5 – 2.0 kg/mt feed

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