Product brochure

Miarom Classic

Inspired by nature – Free breathing

MIAVIT

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Problem situation

It is well known that respiratory problems impair health and performance in livestock, resulting in reduced feed intake and poor feed conversion ratio as well as antibiotic usages. In such situations it is necessary to support the free breathing and enhance animal welfare.

What is Miarom Classic?

Miarom Classic comprises a special combination of various essential oils and is available as liquid (Miarom Classic L) or powder product (Miarom Classic P). Its long-lasting benefits are obtained from a synergistic, standardised combination of essential oils from thyme, anise, peppermint and eucalyptus, among others. Many years of international customer experience have shown that the use of Miarom Classic is beneficial in situations such as heat stress, respiratory tract diseases and decreased performance or vaccination reactions. Furthermore, it improves the air quality providing good and refreshing aroma in the farms.

Essential oils as an alternative

Despite the fact that antibiotics have been one of the most important therapies used for fighting infectious diseases, the incidents of antibiotic resistant infections are alarmingly on the rise. In this respect, essential oils with their particular properties present a promising alternative. Diverse biological activities of essential oils make them interesting and valuable in animal nutrition. They possess antimicrobial activity to fight bacterial diseases, antioxidant activity presenting themselves as natural antioxidants, immunostimulative with positive influence on the immune system and anti-inflammatory effects. The oils can provide relief in stress situations and improve free breathing.

Mode of action

The health benefits of thyme essential oil have been recognised across the Mediterranean for thousands of years. It is one of the strongest antioxidants and supports the immune, respiratory and nervous systems.

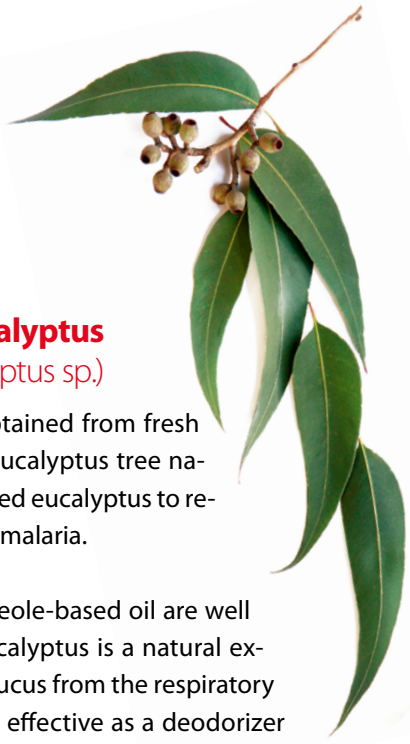
Thymol and carvacrol, the main bioactive components of thyme essential oil, have considerable antimicrobial and antifungal activity. They are effective for symptomatic treatment of bronchitis and whooping cough, as well as infections in the upper respiratory tract in general. Carvacrol is also known as an anti-inflammatory agent, which is also effective in treating pain and swelling.

Thyme
(Thymus vulgaris)

Thyme essential oil works as expectorant – promoting the discharge of mucus from the respiratory tract. Being antispasmodic by nature, it helps relaxing contractions and smoothing muscles.

Thyme possesses also antioxidative properties – those are nutrient compounds, which primary job is to protect cells against the oxidative stress caused by free radicals. Too much of this oxidative stress throws the body out of harmony, leading to numerous chronic disorders.

It also has anthelmintic properties, being an effective natural dewormer. Furthermore, there are numerous studies, which prove that the inclusion of thyme oil had a positive effect on body weight gain, thus it could be considered as an alternative natural growth promoter.



Eucalyptus
(Eucalyptus sp.)

Eucalyptus essential oil is obtained from fresh leaves of the tall, evergreen eucalyptus tree native to Australia. Aborigines used eucalyptus to relieve fevers, sores and to fight malaria.

The health benefits of the cineole-based oil are well known and wide-ranging. Eucalyptus is a natural expectorant, helping to expel mucus from the respiratory tract. Being an antiseptic, it is effective as a deodorizer that kills bacteria and germs in the air and keeps the environment of the rooms clean and refreshing.

Eucalyptus oil is also known to increase phagocytic activity, meaning that it can be used to boost the immune system.

Anise
(Illicium Verum)

Star anise is native to China and Vietnam and has been used as an expectorant. Star anise contains anethol, which possesses antimicrobial properties that are effective against bacteria, yeast and fungal strains.

Star anise helps to prevent and treat spasms in the lungs, as well as it is very effective in clearing congestion in the lungs and airways. It is also remarkably effective in loosening mucus or phlegm deposited in the lungs and airways. Last but not least, anise has a pleasant taste.

Peppermint
(Mentha x piperita L.)

Peppermint is believed to have originated in Northern Africa and the Mediterranean. In an ancient Egyptian medical text dating back to 1550 BC, mint is described as cooling on hot days. It was highly valued in Egypt, so that it was even used as a form of currency.

Nowadays peppermint essential oil has been called as one of the most versatile oils in the world. It is obtained from peppermint plants and contains mainly menthol, menthone and 1,8-cineole.

Peppermint acts as an expectorant and helps clearing the nasal passageway to promote the relief of congestion and to encourage easy breathing. The powerful organic compounds in this essential oil have a calming effect on muscle spasms. It is also believed to stimulate circulation, reduce nervous tension and boost energy.

Composition and feeding recommendation

	Anise	Eucalyptus	Peppermint	Thyme
Expectorant	x	x	x	x
Antimicrobial	x	x	x	x
Anti-inflammatory		x		x
Antioxidant		x		x
Anthelmintic				x
Antispasmodic	x		x	x

Sources: EMEA, 2006 · Hänsel, 2004 · Reichling, 2008

Miarom Classic P

Contents / kg
natural and nature-identical flavouring compounds 100,000 mg

Feeding recommendation

Turkey chicks:	150 – 250 g / ton
Poultry:	250 – 350 g / ton
Bulls for fattening:	3 – 5 g / animal / day
Calves:	400 – 500 g / ton 1,000 g / ton CMR (at approximately 1 kg calf milk replacer intake per animal and day)
Pigs:	300 – 400 g / ton
Piglets:	200 – 350 g / ton
Sows:	300 – 500 g / ton
Packaging:	20 kg bag

Miarom Classic L

Contents / litre
natural and nature-identical flavouring compounds 200,000 mg

Feeding recommendation

Poultry Chicks:	100 ml / 1,000 l drinking water for 3 days
Poultry:	100 – 250 ml / 1,000 l drinking water for 3 days
	· Additional animal species on request. · It is advisible to dilute Miarom Classic L before the addition to the water in ratio 1:10
Spray application:	1.0 l per 100 l water twice daily with fog generators or machines for coarse spraying
Packaging:	1 litre bottle, 5 litre canister Other sizes are available on demand.

Advantages:
· Usage of antibiotics ↓
· Oxygen level ↑
· Performance ↑

Trial report of Miarom Classic P

Effects in young monogastrics under PCV-2 and LPS challenges

The trial was conducted at Pingdong Technology University by the veterinary faculty in Taiwan. The object of this trial was to evaluate the effect of Miarom Classic P on the respiratory system of young monogastrics under PCV-2* and LPS** challenge.

At 7 weeks of age, all animals except the control group were challenged with 1 ml PCV-2 ($1x10^{5.5}$ $TCID^{***}_{50}$/ml). One week later, the animals were challenged for the second time with LPS (20 µg/kg).

The lungs were observed and an index was created. In Figure 1 the index of the lung observation is shown.

*Porcine circovirus type 2, **Lipopolysaccharides,

***Tissue culture infectious dose

Study design:	1st challenge with PCV-2 on day 21
	2nd challenge with LPS on day 28
Trial duration:	29 days
Number animals:	3 groups of 6 animals each, at 4 weeks of age, randomly allotted, housed individually
Control group:	basal diet
Miarom group with challenge:	basal diet + 0.05 % Miarom Classic P
Pos. challenged group:	basal diet

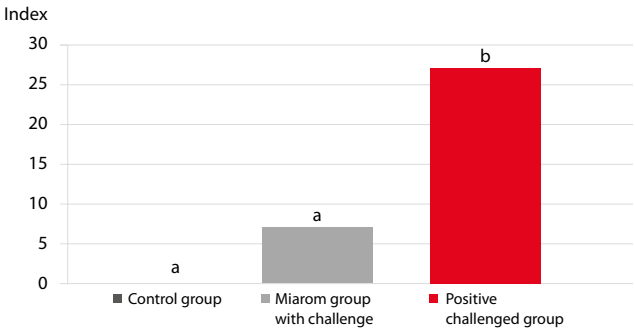


Figure 1: Pathological index for every group - macroscopic alterations in the lungs. (High index describes severe lung tissue alteration)

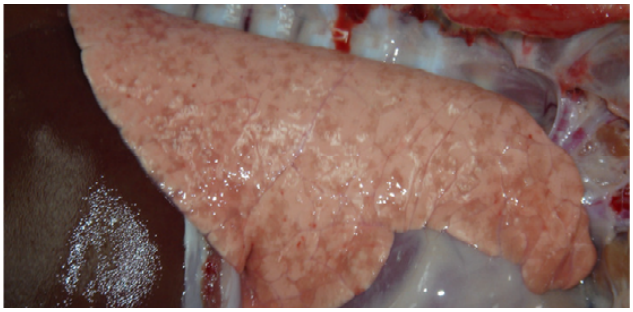


Figure 2: Lung of young monogastric with severe lung tissue alteration in the challenged group without Miarom Classic P

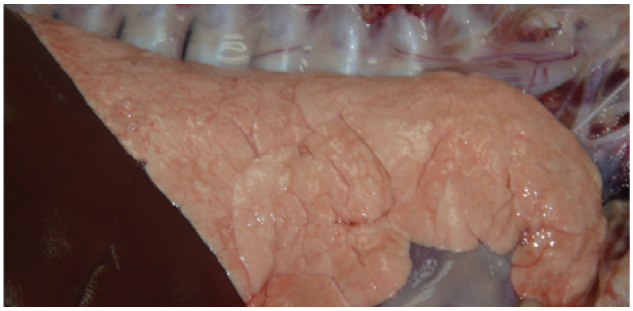


Figure 3: Lung of young monogastric with healthy lung tissue in the control group

Conclusions

The pathological index of the Miarom group was significantly decreased compared to the control group without Miarom Classic P. This confirms the positive effect of Miarom Classic P on the lung tissue. This trial indicates that Miarom Classic P has a positive effect on the respiratory system.

The potential of Miarom Classic L

Effects on broiler performance during heat stress

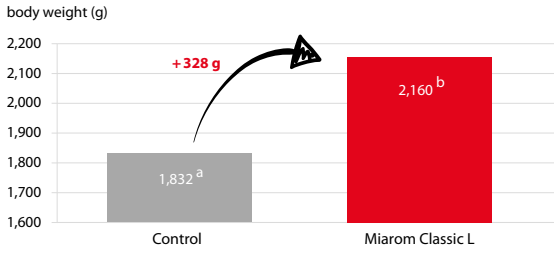
The trial was conducted on a farm in Germany and the objective was to quantify the heat stress reducing potential of Miarom Classic L on body weight at the end of fattening, feed consumption, daily body weight gain and feed conversion.

The animals were exposed to heat stress (35 °C) between day 13 – 18 and 26 – 31. In the trial group, Miarom Classic L was applicated during heat stress periods with a dosage of 250 ml / 1,000 l drinking water.

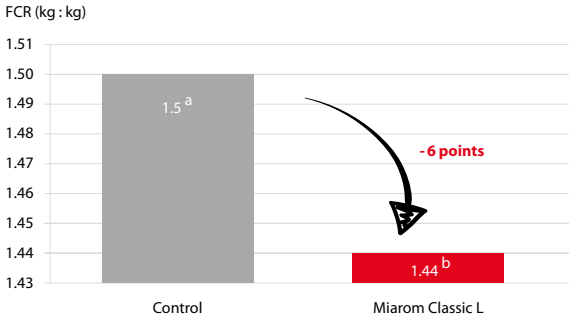
Trial duration:	35 days
Species:	Ross 308 (male)
Number of animals:	250
Trial:	120 birds (12 replicates x 10 birds)
Control:	130 birds (13 replicates x 10 birds)
Trial group:	250 ml Miarom Classic L / 1,000 L of drinking water day 13 – 18 and day 26 – 31
Control group:	without supplementation
Diet:	3 feeding phases according to Aviagen recommendation
Study design:	heat stress induction (35 °C) between day 13 – 18 and day 26 – 31 in both groups
Data analysis:	statistical analysis of data set by institution

Results

Average body weight at the end of fattening



Feed conversion



Performance parameters	Control	Miarom Classic L	Difference
Average body weight	1,832 g[a]	2,160 g[b]	+ 328 g
Average feed consumption	76.8 g[a]	87.3 g[b]	+ 10,5 g
Average body weight gain	51.2 g[a]	60.6 g[b]	+ 9,4 g
FCR (kg : kg)	1.5[a]	1.44[b]	- 6 points
EPEF* (European Production Efficacy Factor)	326[a]	387[b]	+ 61

[a,b] different letters show a statistically significant difference, $p < 0.05$

$$*\text{EPEF} = \frac{\text{Liveability (\%) x BWgain (kg)}}{\text{Study duration (days) x FCR}} \times 100$$

Conclusions

Miarom Classic L improved all performance parameters significantly under heat stress conditions. Birds were stimulated to drink and feed, thus improved daily feed intake.

The art of mixture.

Why MIAVIT?

- supplier of innovative, high-quality products
- transparent, reliable partner
- flexible, fast and customer-oriented personal consultation
- improvement in the quality of life of animals and humans
- support for customer specific products

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Version 06/2021 - en