“A natural way for maintaining good health”

Made in The Netherlands

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Modern livestock have a great performance potential. However, animals have to face multiple stressors that negatively influence their zootechnical index. It is essential to support animal health through nutritional strategies. Ropapharm International B.V., established in 1995, took this into account and supplies the market with high quality feed additives. Ropadiar®, our brand name is a natural feed supplement and flavouring agent based on oregano oil that represents an effective alternative to antimicrobial growth promoters.

The powerful formula of Ropadiar® is developed to raise profits by promoting animal general health status, providing extra protection during stressful periods and improving the technical performance.

The net results has been demonstrated in research and field studies all over the years and it is indeed an interesting product from the cost-effective point of view.

With its own oregano fields, Ropapharm International B.V. controls its range of products from start to finish. After cultivating the carefully selected plants, the oregano essential oil is obtained via steam distillation. By its own plantation areas and distillation facilities, Ropapharm International B.V. provides sustainable quality of raw materials and control the amount of active components in oregano essential oil from which Ropapharm International B.V. feed additives are manufactured.

Our oregano essential oil is characterized by a piquant/sweet aroma and presenting an amber color. Nowadays, most of the oregano essential oils available in the market are white, with watery appearance and defined chemical aroma. These physical traits are caused by synthetic origin, or obtained from plants that have not been selected, such as wild-plants with less concentration of active ingredients.
1. Ropadiar® kills bacteria when it comes into contact with the bacterial wall, by forming pores in the cell wall and leaking ions. 2. Essential metabolic pathways necessary for bacterial survival, such as ATP synthesis (production of energy) will be disrupted. 3. Leading to bacterial death.

Research showed that oregano oil was able to inhibit the bacteria at much lower concentration than other essential oils. (Hammer et al.) Less quantity of oregano essential oil is needed to kill or inhibit bacteria when compared to other essential oils available in the market.

MIC is the lowest concentration of an antimicrobial that will inhibit the visible growth of a microorganism after overnight incubation.

"Oregano has one of the highest antioxidant activity ratings"
Ropadiar® active ingredients show strong antibacterial and anti-oxidant properties, controlling undesirable bacteria in a broad spectrum way throughout the gastrointestinal tract and protecting feed material while storage thus preserving feed quality. It also reduces intestinal parasitic load.

**ANTIMICROBIAL:**
Oregano oil is effective against a wide range of microorganisms, even in low concentrations, as explained above. The pathogenic bacterial load in the gut tract is significantly reduced when oregano oil is taken orally by animals. Besides, bacterial resistance to oregano oil is not probable to take place because of the elevated number of different active ingredients (phenols).

**ANTIFUNGAL:**
Research showed that oregano essential oil was able to inhibit significantly the growth of Aspergillus sp. at much lower concentration than other essential oils. The antifungal properties of oregano essential oil contributes to the preservation and freshness of feed materials.

**ANTIOXIDANT:**
Reactive oxygen species (ROS) are a type of free radical, chemically-reactive molecules containing oxygen. ROS form as a natural byproduct of the normal metabolism of oxygen and have important roles in cell signaling and homeostasis. However, during times of environmental stress (e.g. pathogen or heat exposure, chemical stressors such as mycotoxins), ROS levels can increase dramatically. This may result in significant damage to gut cell structures: Damage of genetic material, lipid peroxidation and oxidation of amino acids in proteins. This cumulates into a situation known as oxidative stress. Polyphenol antioxidants (oregano oil active components) assist in preventing oxidative damage in intestinal cells by inactivating free radicals.

The antioxidant activity of oregano oil is much higher than other antioxidant substances available in the market. Oregano oil antioxidant properties are mainly due to the free radical trapping activity of their components.
Oregano contains many vitamins as well as fiber, folate, iron, magnesium, and potassium.

Ropadiar® is a feed supplement based upon uniquely selected Origanum species. Ropadiar® has appetizing, antibacterial, antifungal, antiparasitical, anti-inflammatory and antioxidative properties. Our studies also revealed that Ropadiar® has a positive effect on the immune system.

If there are specific wishes we can also produce custom made products with different concentrations ingredients and packaging.

**PRODUCT RANGE FOR PIGS, POULTRY AND RUMINANTS.**

**POWDER FORM:**

**Ropadiar® Powder Plus**
Composition: Ethereal oil (oregano oil), calcium carbonate and wheat fiber.
Packaging: 25Kg bag

**Ropadiar® Powder CC**
Composition: Ethereal oil (oregano oil) and calcium carbonate.
Packaging: 25Kg bag

**Ropadiar® OCC Powder Mix**
Composition: Ethereal oils (oregano, cinnamon and capsicum), calcium carbonate and wheat fiber.
Packaging: 25Kg bag

**Ropadiar® Gold**
Composition: Ethereal oil (oregano oil), cayenne pepper, silicon dioxide and wheat flour.
Packaging: 25Kg bag

**Ropadiar® Powder GG30**
Composition: Ethereal oil (oregano oil) and diatomaceous earth.
Packaging: 20Kg bag

**Ropadiar® Powder GG30 Organic**
Composition: Ethereal oil (organic oregano oil) and diatomaceous earth.
Packaging: 20Kg bag

"Oregano contains many vitamins as well as fiber, folate, iron, magnesium, and potassium"
Oregano has anti-inflammatory, anti-microbial, and anti-fungal effects.

"Oregano oil is a powerful antimicrobial, because it contains an essential compound called carvacol."
ROPADIAR® FOR POULTRY

SPECIFIC BENEFITS OF USING ROPADIAR® IN BROILERS, LAYERS AND TURKEYS:
- Maximizes intestinal health.
- Strengthens the immune system.
- Production of less ammonia (drier feces).
- Powerful antioxidant.
- Powerful anti-inflammatory.

ADVANTAGES OF USING ROPADIAR® IN BROILERS, LAYERS AND TURKEYS:
- Provides extra protection during stressful periods.
- Reduces incidence of diseases caused by bacteria.
- Reduces mortality.
- Improves growth rates and feed conversion ratio.
- Improves efficiency in growers and layers.
- Easy to use.

SPECIES
- Broiler
- Laying Hens
- Turkey

RECOMMENDED DAILY DOSE
- Starter: 300 - 500 g
- Grower / Finisher: 250 - 400 g
- Other phases: 200 - 400 g

STAGE
- Starter
- Grower / Finisher
- Other phases

ROPADIAR® Powder 8% (g/1000kg)

USAGE INSTRUCTION:
Ropadiar® for poultry is available in powder and liquid both in different concentrations*.
Recommended dosages for Ropadiar® Powder 8%:

**SPECIES** | **STAGE** | **RECOMMENDED DAILY DOSE**
--- | --- | ---
Broiler | Starter | 300 - 500 g
| Grower / Finisher | 250 - 400 g
Laying Hens | 150 - 300 g
Turkey | Starter | 300 - 500 g
| Other phases | 200 - 400 g

Effect of Ropadiar® on fecal counts of Campylobacter-infected broiler chickens. (Dr.Ir. H. Grooten 2005).

**RESULTS:**
Feces from broiler chickens within the Ropadiar® group showed a lower number of colony forming units (cfu) of Campylobacter jejuni when compared to control.

**BROILER STUDIES:**
Effect of Ropadiar® on performance of Campylobacter-infected broiler chickens and calculated feed profit per 1000 broilers delivered to the slaughterhouse at 35 days (Prices from Kwin data, 2004)

<table>
<thead>
<tr>
<th><strong>Daily feed intake (gr/day/bird)</strong></th>
<th><strong>Control</strong></th>
<th><strong>Ropadiar® 250 ppm</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body weight at 6 weeks</strong></td>
<td>2114</td>
<td>2232</td>
</tr>
<tr>
<td><strong>FCR</strong></td>
<td>1.66</td>
<td>1.64</td>
</tr>
<tr>
<td><strong>FCR for 1500gr</strong></td>
<td>1.42</td>
<td>1.35</td>
</tr>
<tr>
<td><strong>Production number</strong></td>
<td>101.5</td>
<td>107.4</td>
</tr>
<tr>
<td><strong>Feed profit (€/1000 broiler)</strong></td>
<td>370</td>
<td>428</td>
</tr>
</tbody>
</table>

"Reduction of ammonia content in feces"
Laying hen studies

Feeding examination of Ropadiar® Powder 10% in laying hens “The egg production rate increased by 9% with the feed conversion improving by 6%.”

Field trial at the Osaka Prefectural Center for Agriculture & forestry in Japan (2000)

You can observe the results of the Dutch field trial between 2004 and 2005 on 50,000 laying hens. This study was designed to show effects of Ropadiar® recommended dosage (250 ppm) on the performance and yield on laying hens.

Results: Laying hens within the Ropadiar® group presented less mortality rate and 7% higher egg production when compared to control group.

SPECIFIC BENEFITS OF USING ROPADIAR® IN SOW AND PIGLETS:

- Maximizes intestinal health.
- Strengthens the immune system.
- Powerful antioxidant.

ADVANTAGES OF USING ROPADIAR® IN SOW:

- Provides extra protection during stressful periods.
- Reduces mortality.
- Improves palatability and feed intake.
- Improved fertility, litter size and weaning weight.
- Increases sow’s milk production.
- Improve immune system piglets.
- Easy to use.

Effect of Ropadiar® on gestation and lactation cycle:

Results: In both field trials, use of dietary oregano increased farrowing rate and piglets born live when compared to control group. Sow mortality was significantly reduced within the oregano group when compared to control group. In the sow trial (Allan 2006) Ropadiar group presented increased feed intake compared to control group.

![Graph showing egg production and average egg weight comparison]

![Graph showing mortality comparison]
**ADVANTAGES OF USING ROPADIAR® IN PIGLETS:**

- Decreases incidence of diarrhea.
- Use of emulsion is effective against E. coli in suckling piglets.
- Reduces stress during weaning.
- Improves palatability and feed intake.

- Improves growth rates and feed conversion ratio.
- Higher carcass value: Adding loin depth → Leaner carcass → higher returns.
- Easy to use.

**Study results:** Improvement of animal health.
Effect of treatment with Ropadiar emulsion and conventional antibiotics on the remission (%) of diarrhea in E.coli-infected piglets. (Source from: Bayer, Nisoli 2000)

**Results:** 48 hours and 60 hours after E. coli challenge, 70% and 100% of piglets given Ropadiar® did not show any sign of diarrhea respectively.

**Study results:** Improvement of litter performance.
1-Effect of Ropadiar® on piglet performance in the post-weaning period after E. coli challenge. E. coli challenge at day 6 after weaning (WUR 2007).

**Study results:** Improvement of animal health.
Effect of Ropadiar® on performance after weaning (FIS 2007).

**Results:** Piglets within the Ropadiar® group showed better feed utilization when compared to control piglets.

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**Results:** Increase of growth and feed efficiency in piglets within the Ropadiar® group 9,6% higher than piglets within the control group. The use of Ropadiar® prevents decreases in feed intake after challenge.

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**SPECIES**

- Suckling piglets
- Weaned piglets
- Piglets (12-25kg body weight)
- Starter pigs (25-45kg body weight)
- Growing-fattening pigs (>45kg body weight)
- Lactating sow
- Gestating sow
- Pigs (in general)

**STAGE**

- 0-12kg body weight
- 12-25kg body weight
- >25kg body weight
- 25-40kg body weight
- >45kg body weight
- 250 g
- 350 - 400 g
- 100 - 250 ml

**RECOMMENDED GRAMS/TONNE**

- 500 g
- 500 g
- 150 - 500 g
- 200 - 400 g
- 200 - 400 g
- 250 g
- 350 - 400 g
- 100 - 250 ml

**PRODUCT**

- Ropadiar Powder 8% (g/ 1000kg)
- Ropadiar Emulsion
- Ropadiar Powder 8% (g/ 1000kg)
- Ropadiar Powder 8% (g/ 1000kg)
- Ropadiar Powder 8% (g/ 1000kg)
- Ropadiar® Powder 8% (g/1000Kg)
- Ropadiar® Powder 8% (g/1000Kg)

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**Body gain**

<table>
<thead>
<tr>
<th>Day 1-6 (pre challenge)</th>
<th>Control</th>
<th>Ropadiar®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 6-12 (challenge at day 7)</td>
<td>85</td>
<td>112</td>
</tr>
<tr>
<td>Day 12</td>
<td>601</td>
<td>659</td>
</tr>
<tr>
<td>Body weight start</td>
<td>7.00</td>
<td>7.05</td>
</tr>
<tr>
<td>Body weight day 22</td>
<td>12.6</td>
<td>14.0</td>
</tr>
</tbody>
</table>

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**Feed intake (g/d)**

<table>
<thead>
<tr>
<th>Day</th>
<th>Control</th>
<th>Ropadiar®</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-6</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>7-8</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>9</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>10</td>
<td>200</td>
<td>250</td>
</tr>
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<td>200</td>
<td>250</td>
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<td>12</td>
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**Body Weight start (kg):**

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<th>Control</th>
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<tbody>
<tr>
<td>6-7</td>
<td>8.1</td>
<td>8.2</td>
</tr>
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**Body Weight day 22 (kg):**

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“Natural solution for piglets diarrhea”

“Natural enhancer of carcass quality”
Ropadairy® provides continuity of healthy digestive system for cows and also reduces weaning stress of calves because of active compounds of oregano oil. Ropadairy has properties which can be beneficial against bacteria like Staphylococcus Aureus and E. Coli.

**SPECIFIC BENEFITS OF USING ROPADAIRY®:**
- Maximizes intestinal health.
- Strengthens the immune system.
- Powerful antioxidant.

**ADVANTAGES OF USING ROPADAIRY®:**
- Provides extra protection during stressful periods.
- Reduces incidence of diarrhea caused by common intestinal pathogens.
- Increases milk yield.
- Reduces SCC (Somatic Cell Counts)- indicator of mastitis.
- Easy to use.

**USAGE INSTRUCTION:**
Ropadairy® for cows is available in powder in different concentrations*. Recommended dosages (g / 1000kg)

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>PRODUCT</th>
<th>RECOMMENDED DAILY DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy cows</td>
<td>RopaDairy® Powder 5%</td>
<td>500 - 700 g</td>
</tr>
<tr>
<td>Calves</td>
<td>RopaDairy® Solution 5%</td>
<td>250 - 400 g</td>
</tr>
</tbody>
</table>

Ropaject® which is an emulsifier of sunflower oil and oregano oil which is used for the treatment of calves diarrhea applied orally. Ropaject® effects are seen in a very short time and it helps to reduce losses to a minimum due to diarrhea. Only one application of Ropaject® after defecation of meconium will be enough for the prevention of diarrhea.

**STUDY RESULTS**

**Ropadairy® rumen effect**
This study was designed by FIS (Feed Innovation Service, The Netherlands, 2006) to observe in vitro effects of Ropadairy® on rumen volatile fatty acids and reduction of methane (%).

**Ropadairy® effect on SCC score**
This study designed on 170 milking cows in South Korea at 2007, to show effects of Ropadairy® on SCC score. Ropadairy® was given daily with an amount of 1g to 1kg of compound feed. Cows are divided into three groups by their SCC score which is lower than 200.000 (%49), between 200.000 and 400.000 (%24) and over than 400.000 (%27). You can observe effects of feeding with Ropadairy® for 14 weeks on SCC score at the chart.

**Acute catarrhal enteritis**
125 calves suffered from common diarrhea caused by different bacteria. 71 calves were treated with Ropaject® and 54 of them treated with Enterotonon (recommended dosages). You can observe the number of treated calves and time for diarrhea to persist.

"Reducing incidence of diarrhea in calves"