

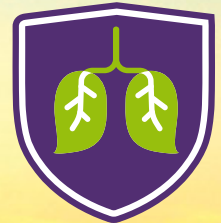


PATENT CO.®



Natural immune and respiratory support

ImmunoHype is a water soluble
premixure of non-antibiotic feed
additives, such as lysozyme,
essential oils and vitamins.



IMMUNOHYPE™

**RESPIRATORY
SUPPORT**



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problem

Poultry respiratory diseases (PRD) present a serious threat to poultry producers worldwide. Financial losses are a result of low biosecurity and poor infection management that lead to high mortality of poultry.

Oxidative stress, particularly one related to cold, has important role in development of PRD (Zhao et al., 2013).

The major causative agents of PRD are avian pneumovirus, avian influenza virus, infectious bronchitis virus, Newcastle disease virus, *Avibacterium paragallinarum*, *Ornithobacterium rhinotracheale*, *Mycoplasma synoviae*, *Mycoplasma gallisepticum* and Avian pathogenic *Escherichia coli*. The respiratory infections in poultry often have complex aetiology. **The secondary bacterial** (*Streptococcus pneumoniae*, *Streptococcus pyogenes* and *Staphylococcus aureus*) **and viral infections are common** (Yashpal et al., 2004; Patel et al., 2018).



RESPIRATORY SECONDARY INFECTIONS



Increased stress



Immunosuppression



Kidney
inflammation



Sputum, cheesy
exudate in air sacs



Watery
diarrhoea



IMMUNOHYPE™
—
RESPIRATORY
SUPPORT

1



increased feed
conversion ratio

2



increased
mortality

3



decrease in
egg quality

4



drop in egg
production

5



low productivity
of breeders

6



increased medical
treatment expense

NEGATIVE IMPACT



SNEEZING, COUGHING,
GASPING, RALES



NASAL DISCHARGE,
SNEEZING, GASPING



DYSPNOEA, GASPING,
SWELLING AROUND EYES



DYSPNOEA, PANTING
(DISTURBED THERMOREGULATION),
LACK OF ENERGY, POOR APPETITE



SUDDEN DEATH,
INCREASED MORTALITY

did you know that...

ESSENTIAL OILS



Thymus sp.

has antibiotic, antispasmodic, antitussive, expectorant, secretomotor, bactericidal properties



Origanum sp.

has bronchodilator antimicrobial and antifungal properties.



Coriandrum sp.

has antimicrobial, antifungal and antioxidant properties

VITAMINS

A

C

E

D

B

Deficiency of vitamins **A, E, D, B12** and **C** is associated with respiratory diseases

Water soluble vitamin **E** and **C** application reduce *E. coli* respiratory infection may decrease disease incidence and mortality

Nicotinamide is known as antioxidant, anti-inflammatory agent and immunomodulator

LYSOZYME

LYSOZYME is an antimicrobial enzyme produced by animals that forms part of the innate immune system

LYSOZYME is the most abundant antimicrobial polypeptide in respiratory tract secretions (respiratory surfactant), local levels of which increase with inflammation (Ganz, 2002, Dubin, Robinson et al. 2004).

LYSOZYME has antibiotic effect on G+ and G- bacteria too

Some viruses, like influenza virus, inhibit lysozyme secretion by sputum neutrophils in subjects with chronic bronchial sepsis (Pang et al., 2000)

The acute lysozyme deficiency may reduce the resistance of the lung to infection (Balk et al., 1991; Shelley et al., 1991).

LYSOZYME has possible immunomodulatory role



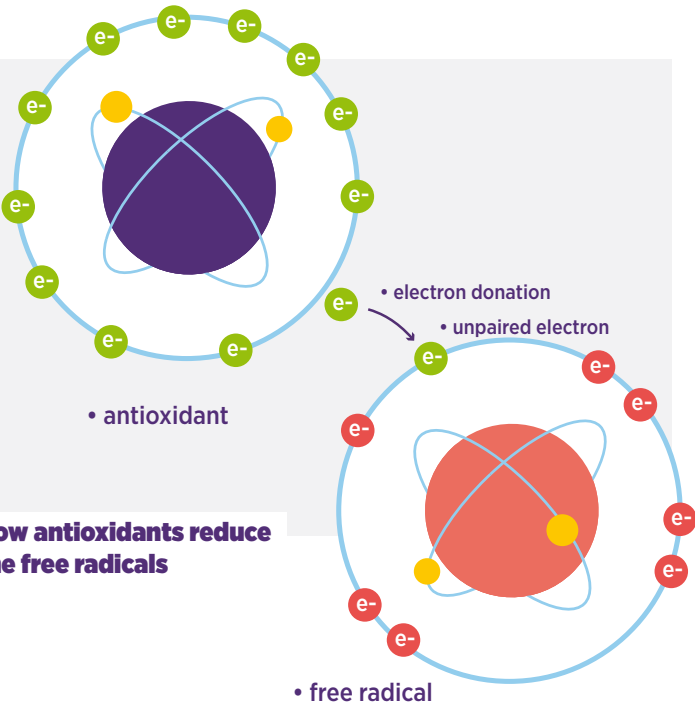
ANTIOXIDANTS

Thyme and oregano essential oils have significant antioxidative properties because they contain large amounts of the monoterpenes thymol and carvacrol.

Tannins reduce diarrhea, prolong feed stability and improve meat quality by preventing oxidative stress in farm animals.

Chestnuts contain phenolic compounds which are bioactive compounds believed to be involved in the defense process against oxidative damage due to the flavonoids and other polyphenolic compounds they contain.

Vitamins E and C are well known for their antioxidant effect and they have potential to be used in prevention of oxidative stress present during lung diseases.



How antioxidants reduce the free radicals

ImmunoHype is the first-choice solution for treating poultry and pig respiratory diseases and strengthening innate immunity.

ImmunoHype water soluble premixture of non-antibiotic feed additives, such as lysozyme, essential oils and vitamins.

TECHNICAL DATA		INDICATION	DOSE
Appearance	Fine light-yellow powder	Treatment	1000g/ton of water
Solubility	Water soluble	Prevention	500g/ ton of water
Application	Poultry and pigs	* contact PATENT-CO. expert team for further instructions	



ABOUT US

PATENT CO. is a multinational company established in 1990 in the heart of Europe, in Serbia. Today we operate on 5 continents.

PATENT CO. strives to be an innovative and internationally-oriented company that is always one step ahead in introducing new technologies in animal nutrition.

RESEARCH AND DEVELOPMENT

Every year, **PATENT CO.** invests significant resources in research and development programmes in laboratories, research centres and farms. This programme facilitates the development of new products, with a view to finding optimal animal feed production solutions.

QUALITY AND SAFETY

PATENT CO. invests in state-of-the-art equipment for the production of animal feed additives and premixtures, allowing us to achieve final products of a consistently high quality. This process ensures full traceability, from the reception of raw materials to delivery of the product to the customer.



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