



IMMUNO VALLEY
Connecting Human and Animal Health

MODIPHY: Modulation with Immune-stimulating Phytochemicals

Phytotherapy may be a multifaceted inhibitor of poultry diseases

Coccidiosis (a single-cell parasite) and *E. coli* bacteria both cause billions of Euros in losses for the poultry industry each year. These bacteria nestle in the intestines of infected animals. Coccidiosis disturbs the absorption of nutrients, causes growth defects and leads to higher fatality rates. *E. coli* can lead to peritonitis, and the presence of the bacteria can make the entire animal unsuitable for consumption. Both display an increasing level of resistance to the antibiotics used to combat these pathogens.

MODIPHY is searching for alternatives to antibiotics for poultry in the field of phytotherapy. Phytotherapy is the treatment of diseases using substances derived from plants. Once thought to be little more than 'herbal medicine', phytotherapy is now considered to be a potential alternative to pharmaceuticals. For example, researchers have recently proven that Carvacrol, an ethereal oil found in plants such as oregano, rosemary and thyme, can act as an antimicrobial agent. Carvacrol appears to function similarly to the body's own 'stress proteins' which stimulate the immune system to combat intruders. Certain phytochemicals now appear to play a role in several aspects of the fight against Coccidiosis and *E. coli*. They weaken foreign microorganisms and stimulate the production of stress proteins that reinforce the intestinal wall and inhibit inflammation. They also activate and reinforce the immune system. Whether individually or in combination with other substances, the phytochemicals studied by the MODIPHY project are also expected to provide a positive contribution to protecting poultry against other diseases, such as staphylococcus infections. Once their effectiveness has been proven, these phytochemicals can also be developed for other animal species and for humans. One of the main advantages to these substances is that they are natural ingredients that can easily be registered for use as a product.

MODIPHY Project Leader

Prof. Willem van Eden, Department of Infectious Diseases & Immunology, Faculty of Veterinary Medicine, Utrecht University.