بسم الله الرحمن الرحيم

" وما أوتيتم من العلم إلا قليلاً "

صدق الله العظيم

سورة الإسراء الآية رقم

٨٥

IMMUNOMODULATORS

EFFECT OF CERTAIN FEED

ADDITIVES IN BROILERS

Thesis Presented
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1. Introduction

Feed additives means, a some of ingredients that added to feed of either animals or poultry and it will improve the productive efficiency (body weight, body weight gain, feed conversion, carcass traits, and some immune response parameters) and economic efficiency (decreasing productive cost, increasing return and net profit) of animals and poultry production. ***Maffott (2005David (2006), and Ahmed (2007).***

The addition of immunostimulants can improve the immunity of the broilers via improving lymphocyte, monocytes and nutrophils and its activity (***(Gusils et al., 1999;***, improving resistance against infectious diseases of either bacterial or viral diseases ***Hegazi et al. (1995)*** improving the body weight, body weight gain and feed conversion, also improve carcass characters and relative body weight of internal organs in relation to body weight ***Hegazi et al., 1996)***.

Recent evidences ***Gabriel et al., 2006)*** indicated that various dietary and microbial supplements influence host immunity, against viral diseases**.**

For economical reasons, a phenotypic inbreeding for production parameters, which might result in a genotype linkage with an altered immune responsiveness, marks the poultry industry today. A well-developed immune system and optimal immune responsiveness remain important for the welfare and productivity. Indeed these qualities can only be obtained if the health status of the bird scores high. Therefore a lot of energy is invested in prophylactic measures such as vaccination and chemoprophylaxis against infectious diseases. However, health and immune responsiveness is not only maintained and

improved by vaccinations and hygiene but also by an adequate supply of nutritional components to the bird. Moreover, immune reactivity can be modulated by nutritional interventions such as alterations in minerals, vitamins, essential fatty acids or other substances (e.g. oligosaccharides). ***(Huyghebaert, 2007).***

Aim of the work

Role of the most pronounced prebiotic immunostimulants (Immunair) and the probiotic(Nutrilack) on the immunity of the broilers.

2. Review Of Literature

1. History of using immunostimulants :

Probiotic and prebiotic foods have been consumed for centuries, either as natural components of food, or as fermented foods. Interest in intestinal microbiology and the dietary use of prebiotics and probiotics blossomed in the late 1800 s and early 1900 . The growing enthusiasm was motivated Escherich's isolation of Escherichia coli in the late 1800s, as well as active research on the benefits of feeding lactic acid bacteria and lactose near the turn of the 20th century ***(Rettger and Cheplin, 1921)***.

Metchnikoff (1951) noticed the longevity of Bulgarians who consumed yogurt, and in 1907, he proposed that the endogenous bacteria were harmful and that ingestion of lactic acid bacteria in yogurt had a positive influence on health ***(Stavric and Kornegay, 1995 and Rolfe, 2000)***. Numerous in vivo and in vitro studies since then have shown that the commensal intestinal microbiota inhibit pathogens, that disturbances of the intestinal microbiota can increase susceptibility to infection, and that addition of prebiotics and probiotics increase resistance to infection ***(Stavric and Kornegay, 1995 and Rolfe, 2000).***

During the past 50 years, the poultry industry has developed in several areas of nutrition, genetics , engineering, management and communications to maximizing the efficiency of growth performance (weight for age and feed conversion) and meat yield. Today however, the poultry industry must focus more attention towards addressing public concern for environmental and food safety. As in many other industries, the global paradigm is shifting from an

emphasis on efficiency to one of public security. Nothing demonstrates this paradigm shift more clearly than the issues concerning the use of antibiotic growth promotants. For the past 4 decades, antibiotics have been supplemented to poultry feed to improve the growth performance and protect birds from the adverse effects of pathogenic and non-pathogenic enteric microorganisms. Despite the abundance of scientific data that has been presented on the benefits of antibiotics, there is limited information about how antibiotics promote growth and especially how they affect the physical attributes of the animal and the microbial populations that reside within the gastrointestinal tract. Now, antibiotics have come under increasing security by some scientists, consumers and government of antibiotic-resistant human pathogenic bacteria after long use ***(Phillips, 1999; Ratcliff, 2000 and Ferket et al., 2002).*** Consequently, the poultry industry must develop alternatives to antibiotic growth promotants, or at least substantially reduce the amount of antibiotics used to maintain efficient poultry production and produce safe poultry meat and egg products. Mannanoligosaccharide (MOS) supplied by BioMas® (Alltech, Inc., Lexington, KY) is one alternative product to antibiotics.

2. Importance of immunostimulants :

Enteric diseases are an important concern to the poultry industry because of lost productivity, increased mortality, and the associated contamination of poultry products for human consumption (human food safety). With increasing concerns about antibiotic resistance, the ban on subtherapeutic antibiotic usage in Europe and the potential for a ban in the united states, there is increasing interest in finding alternatives to antibiotics for poultry production. Prebiotics

and probiotics are two of several approaches that have potential to reduce enteric disease in poultry and subsequent contamination of poultry products. Probiotic, which means "for life" in Greek ***(Gibson and Fuller, 2000),*** has been defined as "a live microbial feed supplement which beneficially affects the host animal by improving its intestinal balance" .

Recent evidences ***(Dalloul et al., 2003; Duffy et al., 2005; Gabriel et al., 2006 and Dalloul et al., 2006)*** indicated, that various dietary and microbial supplements can influence host immunity against various diseases prompted us to investigate the role of a new probiotic (Mito Max, Imagilin Technology, LLC, Frederick, MD) on avian coccidiosis

Hughebaert (2007) reported that, livestock performance and feed efficiency are closely interrelated with the qualitative and quantitative microbial load of the host animal, including the load in the alimentary tract and in the environment. Poultry possess a limited natural resistance and immunity against colonization or infection by potentially pathogenic microorganisms. Antimicrobial feed additives have made a tremendous contribution to the profitability in the intensive husbandry and providing producers with healthy and nutrious poultry products. As a consequence of the increasing concern about the potential for antibiotic resistant strains of bacteria, the European Commission decided in 1999 by invoking the precautionary principle to ban 4 commonly used feed antibiotics.

3. Types and nature of immunostimulant :