Review

A review of the role of five kinds of alternatives to in-feed antibiotics in broiler production

Rozbeh Fallah*, Ali Kiani and Arash Azarfar

Department of Animal Science, Faculty of Agriculture, Lorestan University, Khorramabad, Iran.

*Corresponding author E-mail: Fallah.rozbeh@yahoo.com. Tel: 09372986016

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In view of severe restriction of total ban on the use of antibiotics as growth promoters and therapeutic agents in poultry industry, the search for alternatives to replace antibiotics has gained increasing interest in animal nutrition. Gut micro flora appears to be the target for IFAs and alternatives to exert health benefits and some growth-promoting effects. Subsequent to banning of use of antibiotics as growth promoter sin poultry nutrition, numerous studies turned to finding of alternative solutions, that is, other natural substances, which would have positive effect on chicken growth and feed conversion. Today, several groups of these additives are in use and most often probiotics, prebiotics, synbiotic, acidifiers and phytobiotics additives. Considering that each of the stated groups has its own specificities, the objective of this work was to present main mechanism of their action and to present their effect on production results in fattening of broiler chickens through review of research published in this field.

Key words: Broilers, probiotics, prebiotics, phytobiotics, synbiotic, acidifiers

INTRODUCTION

Growth promoters are chemical and biological substances which are added to livestock food with the aim to improve the growth of chickens in fattening, improve the utilization of food and in this way realize better production and financial results. Their mechanism of action varies. Positive effect can be expressed through better appetite, improved feed conversion, stimulation of the immune system and increased vitality, regulation of the intestinal micro-flora, etc. A probiotic is a live microbial feed supplement, which beneficially affects the host animal by improving its intestinal balance. It has been used as a substitute of antibiotics that is being used in considerable amounts as growth promoters in broilers production and is, associated with incalculable risks for human health resulting from the use of particular feed additives. Probiotics are one of the approaches that have a potential to reduce chances of infections in poultry and subsequent contamination of poultry products (Bellisle et al., 1998). Prebiotics are selectively fermented, dietary ingredients that result in specific changes in the composition and/or activity of the gastrointestinal microbiota, thus conferring benefit(s) upon host health (Zhan et al., 2003). Aromatic plants (phytobiotics) have been used since ancient times for their preservative and medicinal properties and to impart aroma and flavor to food. Hippocrates, the 'father of medicine', used plant extracts and prescribed perfume fumigations. For centuries, aromatic plants, also known as herbs and spices, their essential oils and herbal extracts have been used as natural pharmaceuticals in traditional medicine.