

ROLE OF HERBAL POLYSACCHARIDES AS GROWTH PROMOTERS IN BROILERS

M. Zafar, A. A. Anjum, M. F. Qamar*, M. I. Najeeb and A. Maqbool

Department of Microbiology, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore – Pakistan

*University College of Veterinary & Animal Sciences, The Islamia University Of Bahawalpur-Pakistan

Corresponding author email: fiazqamar1@yahoo.com

ABSTRACT: Compared to the birds in vaccinated groups that were kept without feeding Livol, the sera of the IBD(Hot), IBD(Intermediate) and NDV vaccinated birds kept on Livol had higher antibody titers on day 42. Amongst various treatment groups the highest haemagglutination inhibition titers was recorded in IBD (Hot) feed with Livol treated birds as compared to the other groups. Treatment related changes in body weight, organ body weight ratio of thymus, spleen and Bursa of fabricius were also observed amongst the various groups. The addition of Livol (Herbal Polysaccharides) to feed diminished the adverse/immunosuppressive effects of different vaccine on antibody titres against Newcastle and most relative organ weights. These findings suggested that Livol (Herbal Polysaccharide) can effectively stimulate/enhance the body weight gain, immunity in broiler chicks and Livol (Herbal polysaccharides) can be potential ameliorator against various vaccines and its adverse/suppressive effects in broiler chicks.

Key words: herbal polysaccharides, growth promoters, broilers

INTRODUCTION

Herbs have been used as food and for medicinal purposes for centuries. The World Health Organization estimated that 80% of the earth's inhabitants rely on traditional medicine for their primary health care needs, and most of this therapy involves the use of plant extracts or their active components. Those plants and their components are perceived as "natural" and "safe" by consumers. Such compounds are already established as flavorings in human and animal feeds; however, we now understand that certain materials also have added technical benefits that may be exploited to maintain animal performance. In different herbs, a wide variety of active phytochemicals, including the flavonoids, terpenoids, lignans, sulfides, polyphenolics, carotenoids, coumarins, saponins, plant sterols, curcumins, and phthalides have been identified [1]. In limited research, some aromatic plants and their components on the performance, the addition of these substances to the feeds and water improved feed intake, feed conversion ratio and carcass yield [2,3,4]. As an aromatic plant, anise (*Pimpinella anisum L.*) is an annual herb indigenous to Iran, India, Turkey and many other warm regions in the world. Anise oil has *anethole* (85 %) as active ingredient and also it has contained *eugenol*, *methylchavicol*, *anisaldehyde* and *estragole*. As a medicinal plant, anise has been used as a stimulating effect of digestion and antiparasitic [5].

Stress is responsible for suboptimal growth and production performances. When a bird is exposed to any external/internal upset, certain body changes are brought about resulting in shock or any event that may threaten the biological integrity of the bird or any undesirable or harmful condition resulting from a situation where the body of the bird is unable to perform his normal functions. Heat stress adversely affects the growth and production performances of birds. The domestic fowl is a homeothermic which can live comfortably only in a relative narrow zone of thermo neutrality extending from 14.5°C -25.5°C. Any deviation in the higher side depresses the survival and production of the bird. It is generally

agreed that heat stress not only depresses the growth rate, egg production, feed efficiency, shell thickness and egg weight but also increases death losses in birds [6,7,8,9,10]. The objectives of the present study were to evaluate the effect of Herbal Polysaccharides (Livol) on the growth of broiler chicks as determined by liveability and FCR.

MATERIALS AND METHODS

Experimental broiler chicks: A total of 150 day-old-chicks were reared in the experimental poultry shed, Department of Microbiology University of Veterinary Sciences Lahore under optimal managemental conditions. The chicks were reared until 42 days of age in experimental broiler houses. Birds in all the groups i.e. (A, B & C) were vaccinated against NDV Lasota on days 6 (by eye droppings) & 21(through drinking water). **Group A** were kept as untreated control and were further subdivided into two groups having 25 birds each i.e. Group A1 Not challenged and Group A2 Challenged with virulent ND virus 10^4 EID₅₀, 0.1 ml/chick. **Group B** Birds were fed with herbal Polysaccharides with the dose rate of 1ml/litter in drinking water through out the experiment till day 42nd. This group was further subdivided into two groups having 25 birds each i.e. Group B1 not challenged and group B2 Challenged against Virulent ND virus 10^4 EID₅₀, 0.1 ml/chick. **Group C** Birds were fed with 2ml/litter concentrations of herbal Polysaccharides in drinking water throughout the experiment. This group was further subdivided into two groups having 25 birds each i.e. Group C1 not challenged and group C2 Challenged against Virulent ND virus 10^4 EID₅₀, 0.1 ml/chick.

Feed intake: Feed intake was calculated for treated and untreated birds as well as for herbal birds. The feed used contained no antibiotics, no vitamin and no coccidiostat.

Herbal polysaccharides (LIVOL): Group A was kept as control and no herbal polysaccharides (Livol) were fed. They were further subdivided into two groups i.e. A1 and A2. The birds in group B were also subdivided into two subgroups B1 and B2. both groups were fed with the concentration of 1ml/litter of herbal polysaccharides

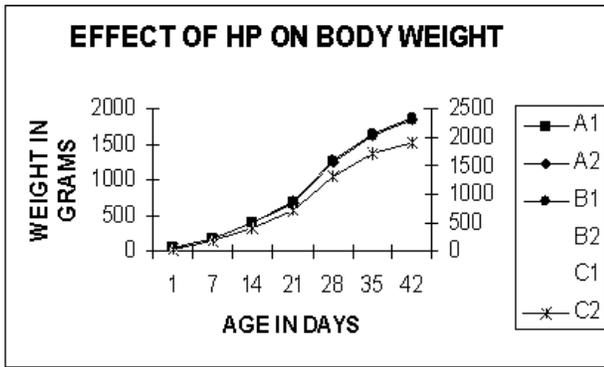


Figure 1: Comparison of Mean Body Weights of Chickens In Various Treatment Groups At Days 1, 7, 14, 21, 28, 35 & 42.

- A1= Vaccinated kept without Herbal Polysaccharides (control group).
- A2= Vaccinated kept without Herbal Polysaccharides (control group).
- B1= Vaccinated & fed with 1ml/Liter Herbal Polysaccharides.
- B2= Vaccinated & fed with 1ml/Liter Herbal Polysaccharides.
- C1= Vaccinated & fed with 2ml/Liter Herbal Polysaccharides.
- C2= Vaccinated & fed with 2ml/Liter Herbal Polysaccharides.

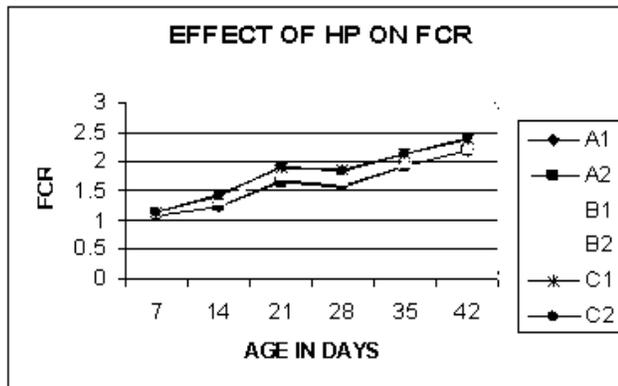
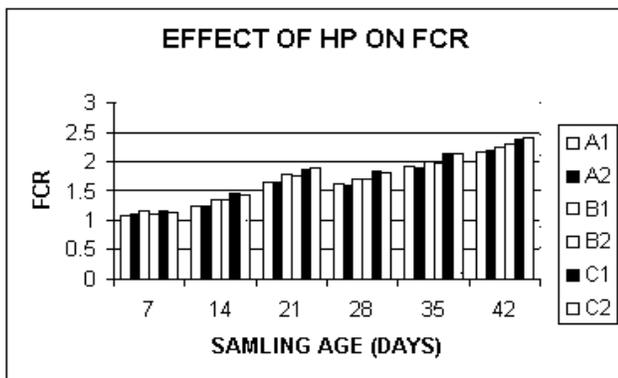


Figure 2: "Feed Conversion Ratio" of Various Groups on Weekly Basis.

- A1= Vaccinated kept without Herbal Polysaccharides (control group).
- A2= Vaccinated kept without Herbal Polysaccharides (control group).
- B1= Vaccinated & fed with 1ml/Liter Herbal Polysaccharides.
- B2= Vaccinated & fed with 1ml/Liter Herbal Polysaccharides.
- C1= Vaccinated & fed with 2ml/Liter Herbal Polysaccharides.
- C2= Vaccinated & fed with 2ml/Liter Herbal Polysaccharides.

CONCLUSION

In conclusion, use of commercially available Heptoprotective, growth stimulant and immunity enhancer Livol (Herbal Polysaccharide) is beneficial for poultry farming. Economic gains (body weight) not only outweigh the cost of use of such product (Livol), the very use of Livol can also result in production of better quality chicken meat for human consumption.

REFERENCES

1. Craig, W. J, Health-promoting properties of common herbs. *Am. J. Clin. Nutr*, **70**(suppl). 491-499(1999)..
2. Alcicek, A., M. Bozkurt. Cabuk, The effect of essential oil combination derived from Selected herbs growing wild in turkey on broiler performance. *South African. J. Anim. Sci.*, **33**:89-94(2003)..
3. Bassett, R., Oreganos positive impact on poultry production. *World poultry-Elesvier*, **16**:31-34(2000).
4. Tucker, L., Botanical broilers: Plant extracts to maintain poultry performance. *Feed Int.*, **23**: 26-29(2002).
5. Cabuk, The effect of essential oil combination derived from selected herbs growing wild in turkey on broiler performance. *South African. J. Anim. Sci.*, **33**:89-94(2003).
6. Mahmood, Z. & M. Fahimullah: comparative heat stress studies on New Hampshire and whiter Cornish layers. *Pak. J. Sci. Res.*, **24**:1-4(1972).
7. Andrade, De. A. N., J. C. Rogler, W. R. Featherstio & C. W. Allisten Interrelation Between diet and elevated temperatures (cyclic +constant) on egg production and Shell Quality. *Poult. Sci.*, **56**:1178-1188(1977).
8. Teeter, R. G. D., M. O. Smith, F. N. Owens, S. C. Arp, S. Sangiah & J. E. Brazile chronic heat stress and respiratory alkalosis: Occurance and treatment in broiler chicks. *Poult. Sci.*, **64**:1060-1064(1985).
9. Branton, S. L., F. N. Reece & J. W. Deation): Use of ammonium chloride and sodium bicarbonate in acute heat exposure of Broilers. *Poult. Sci.*, **65**:1659-1663(1986).
10. Chaudhry, Khalid M. Studies on effect of lowered temperatures during summer nights on productive behavior of white leghorn and Layallpur Silver Black Layers. *J. Agri. Res.*, **10**:64-69(1991).
11. Burg, M. A., Simple method for recording and analyzing serological data. *Avian Dis.*, **2**:362-365(1998).
12. Kubena, L. F., R. B. Harvey, T. D. Phillips and B. A. Clement Effect of hydrated sodium calcium aluminosilicates on aflatoxicosis in broiler chicks. *Poultry science*, **72**(4); 651-657(1993).
13. El-Deek, A. A., Y. A. Attia and M. M. Hannfy. Effect of aniseed (*Pimpinella anisum*), ginger (*Zingiber officinale roscoe*) and fennel (*Foeniculum vulgare*) and their mixture on performance of broilers. 51-60 *Ann. Report. Damnhour Facul. Agric. Dept. of Anim. Poult. Prod, Damnhour, Egypt*(2001)..
14. Wheeler, G. E. Use of a herbal supplement to reduce the effects fo stress in intensively reared chickens. *Ind. J. Indig. Med.*, **11**(1) (2006).
15. Chand, N., F. R. Durrani, M. A. Mian and Z. Durrani Effect of different levels of added *Berberis lycium* on the perfarmance of broiler chicks *Int. J. Bio.*, **2**(4): 971-974(2005)..