The Effect of In Ovo Exposition to Ethanol Upon Osteogenesis of the Chicken Embryo.

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ABSTRACT

Excessive alcohol consumption by a pregnant woman may delay foetal development and may cause malformations. In this study, the model of the chicken embryo to demonstrate the teratogenic effect of ethanol (33%) on the chicken osteogenesis on the 10th day of embryonic development have been used. 49 fertilized eggs were used in present investigation. Hence, different doses of ethanol were injected into the chicken embryos at 33% (20, 40, 80μl) in the air space at gastrulation and, on the other hand, an equivalent amount of the mentioned doses of distilled water were injected into the control-group eggs which was done once in every two days in order to maintain a high concentration in the blood. Experiments were repeatedly and independently carried out for three times. The eggs were incubated in a humid incubator at the temperature of 37.7 °C and at 60-65% of humidity. On the 10th day of incubation, the embryos were taken out and fixed in formalin at 10%. After that, the eggs were sectioned at 5μm of thickness with a Leica micrtome and, then, stained with the Hematoxylin and eosin. Histological examination has revealed that the exposition of chicken embryos to ethanol (33%) delays the skeletal development in a dose-dependent manner by reducing the length of the cartilaginous proliferation zone and hypertrophic zone during the bone formation period. Furthermore, under the effect of ethanol, the cell proliferation activities were repressed. In conclusion, present results indicated that using ethanol to treat chicken embryos at early stages caused considerable malformations and a decreased in the embryo survival rate. The exposition to alcohol affects the chicken osteogenesis in a dose-dependent manner.

Keywords: Chicken embryo, Ethanol, Malformations, Osteogenesis, Teratogenic effect
Aflatoxin induces stress and increases mortality rate during infection in poultry, especially broiler chickens. The objectives of this study were to observe the pathological effects due to aflatoxin contamination in broiler chickens. A total of thirty-two broiler chickens, age of 12-24 months, body weight of 1.50-2.53 kg, were divided into four groups. The treatments involved a basal diet without aflatoxin contamination, and groups were exposed to aflatoxin concentrations of 5, 15, and 50 ppb. The results showed that aflatoxin contamination significantly increased the mortality rate, and the severity of pathological changes was dose-dependent. The findings suggest that aflatoxin contamination should be avoided in the feed of broiler chickens to prevent stress and mortality.

Keywords: Aflatoxin, Mortality rate, Broiler chickens.
Microalgae Biomass Application in Commercial Broilers Nutrition and Their Efficacy


Using microalgal biomass in animal diets has been studied recently. Many species of cultivated microalgae have been used as feed additives in different species of fish and poultry. Microalgae have a high nutritional value and can be used as a source of essential fatty acids, vitamins, minerals, and proteins. In the present study, the effect of adding different levels of microalgae biomass (1% and 2%) to a balanced broiler ration on the growth performance, immune response, and viral shedding of chickens was investigated.

Methods:

One hundred and twenty broiler chicks were divided into 6 groups of 20 birds each. Three groups were fed a balanced broiler ration with 1% and 2% microalgae biomass, respectively, while the other 3 groups were fed the same balanced ration supplemented with free microalgae biomass (1% and 2%). The birds were vaccinated with inactivated Newcastle disease virus (NDV) vaccines genotype II or either non-vaccinated at 20 days of age. The serological response and viral shedding post vaccination with NDV vaccines were monitored. The body weight, feed intake, and mortality were recorded for a period of 4 weeks.

Results:

The results showed that the microalgae had no hazardous effect on the growth rate, weight gain, poultry viability, and immune response. In addition, the other 3 groups that were fed the free microalgae biomass had similar effects with the groups fed the free biomass in normal feed intake. The free microalgae were found effective in maintaining animal growth performance, and in improving body function and body weight. The serological response post vaccination with NDV vaccines was similar for both groups fed the free and the added microalgae biomass.

Conclusion:

Microalgae can be used as a feed additive in poultry diets. They can improve growth performance and immune response without any deleterious effect on the growth rate, weight gain, poultry viability, and immune response. Further studies are needed to investigate the long-term effects of microalgae biomass on poultry health and performance.
ABSTRACT
Clostridium perfringens is the most important cause of enteritis in domestic animals, in chicken and turkey it is well known as a pathogen responsible for necrotic enteritis, hepatitis, and cholecystitis. The disease in turkey is characterized by either severe form with high mortalities or subclinical form of reduced growth rate and increased condemnation rate. The major factor responsible for pathogenicity of Clostridium perfringens was alpha toxin. The aim of the present study was to prepare a Clostridium perfringens alpha Toxoid vaccine for controlling the necrotic enteritis disease. The vaccine was prepared at different doses depending on the lethality of the toxin (24, 48, and 96 Minimum Lethal Dose) for controlling the necrotic enteritis disease. Antibody titer elicited by vaccination was measured by toxin neutralization test, ELISA, and challenge test. It was revealed that antibody titer expressed in international antitoxin units per ml was 7.4, 4.1, and 1.26 respectively according to the mentioned dose, and also the protection percent against challenge was 100% when vaccinated with either 48 or 96 Minimum Lethal Dose, while it gave 80% when vaccinated with 24 Minimum Lethal Dose. It is concluded that use of Clostridium perfringens alpha Toxoid with recommended dose of 48 MLD is able to protect turkey for 6 months.

Keywords: Alpha toxin, Clostridium perfringens, Turkey, Type A, Vaccine