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
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**Keywords:** egg production, Egg quality, Laying quails, Medicinal plants, Thiobarbituric acid

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**ABSTRACT**

The current study was conducted to examine the influences of various medicinal plants and algae on egg quality characteristics of laying Japanese quails. A total of 675 (49 days old) Japanese quail females, 3-month aged, were randomly distributed into nine groups with three replicates of 25 birds in each. Results showed that egg weight, shell weight, albumen weight and shell thickness were not influenced by treatments. The effects of medicinal plants on weekly egg production differ depending on the dietary medicinal plant type and dosage. Moreover, the birds fed diet supplemented with *R. coriaria* peel to the diet lead to be progress in egg production rate, enhanced the egg quality and egg productivity. In addition, the other 3 groups have fed on free microalgae biomass balanced ration with no deleterious effect on growth rate, weight gain, poultry viability and immune response.

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This paper aimed to study the fatty acid composition of turkey meat. Red and white turkey meat were sampled from the local markets of Semey city, republic of Kazakhstan. The proximate composition showed a significant difference in the fat content of red and white meat. The fatty acid composition of turkey meat was as follows: saturated fatty acids 50.67% in white and 52.64% in red meat; monounsaturated fatty acids 28.07% in white and 23.79% in red meat; polyunsaturated fatty acids 21.26% in white and 23.57% in red meat. Palmitic and stearic acid content showed a significant difference in the fat content of red and white meat. The fatty acid composition of turkey meat was as follows: saturated fatty acids 50.67% in white and 52.64% in red meat; monounsaturated fatty acids 28.07% in white and 23.79% in red meat; polyunsaturated fatty acids 21.26% in white and 23.57% in red meat. Palmitic and stearic acid content showed a significant difference in the fat content of red and white meat.

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**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 rates of 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 revealed that the antibody titer expressed as international antitoxin unit 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 concluded that the use of *Clostridium perfringens* alpha toxoid with a recommended dose of 48 MLD is able to protect turkey for 6 months.

**Keywords:** Alpha toxin, *Clostridium perfringens*, turkey, type A, vaccine