Abstract:

This study was carried out to examine effects of glucose and glycine injection into the broiler breeder eggs on hatchability, chick weights and subsequent performance, immune system and gut development of hatched chicks. A total of 180 eggs with similar weights were divided into 6 experimental treatments with 3 replicates and 10 eggs in each replicate in a completely randomized design. Injection was carried out on d 18 in amniotic sac. Experimental treatments were included: 1-without injection 2- injection of 0.5 ml distilled water 3- injection of 0.5 ml glucose 15% solution 4- injection of 0.5 ml glucose 25% solution 5- injection of 0.5 ml glycine 1% solution 6- injection of 0.5 ml glycine 2% solution. Chicks were numerated and weighted after hatching then moved to poultry house to raise until d 42. Body weight gain, feed intake and FCR were recorded on weekly basis. Two birds per replicate were sacrificed at the end of experiment and their relative liver, proventriculus, heart, spleen and bursa of Fabricius were calculated. Blood sampling was performed to determine antibody titer against Newcastle disease virus (NDV), infectious bronchitis virus (IBV) as well as sheep red blood cells (SRBC). Carcass efficiency, breast and thigh meat yield were determined at the end of experiment. Data were analyzed using SAS software and means were compered using Duncan multiple range test. Result showed that experimental treatments significantly affected hatch percent ($P<0.05$) and maximum hatch was observed in glucose treatments. Feed intake was significantly affected on first and sixth wk ($P<0.05$) and the highest feed intake belonged to glucose 15%. Body weight gain was affected on first, fourth and sixth wk ($P<0.05$) and maximum gain was observed in glucose 15% treatment. The best FCR was observed in glucose 15% treatment too. Broilers in glucose 15% injection, and glycine 2% groups produced higher antibody against SRBC, NDV and IBV when compared with control group ($P<0.05$). Dietary treatments did not significant effect on relative breast and thigh weights ($P>0.05$). However, glucose 15% and 25% and glycine 2% increased carcass efficiency ($P<0.05$). Relative gizzard, proventriculus, spleen and heart did not significantly affected by dietary treatments ($P>0.05$) but maximum relative liver weight and minimum relative gut and bursa of Fabricius weights were observed in glucose 25% treatment ($p<0.05$). Concerning the result of hatch weight, FCR, hatchability and immune system, injection of glucose 15% solution could be advisable.

Key words: Glycine, Glucose, *In ovo* injection, Hatchability

University of Zabol
Graduate school
Faculty of Agriculture
Department of Animal Science

The Thesis Submitted for the Degree of M. Sc
(in the field of Animal Nutrition)

Effect of glycine and glucose injection in broiler breeder eggs on embryonic growth and hatchability of chicks

Supervisor:
Dr.F. Bagherzade Kasmani

Advisors:
Dr . M. Mehri
Dr. M. Vafai

By:
M. Raz

Feb 2014