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Effect of alkaline water and /or magnetic water on some physiological characteristic in broiler chicken

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Abstract

Various types of drinking water (alkaline ionized water, magnetic water, and a mixture of the two, and the tap water) have been employed in this research which was carried out in poultry farming, college of Veterinary medicine at the University of Baghdad and lasted for 36 days, started from 13/12/2016 up to 19/1/2017. To study the effect of the drinking water on 160 Ross broiler chickens' physiological and chemical blood traits. The broiler chickens with an average weight of about 42 grams, which are 24 hours of age, were organized into four groups (40 each) in accordance with the type of the drinking water, the first group used the tap water (control group), the second used the alkaline ionized water, the third one used a mixture of the magnetic and alkaline ionized water and the last one used the magnetic water. The results indicated the second experimental group that proved to reduction in blood glucose, cholesterol, and triglycerides (115g/l, 142.91 mg/dl, 151.88mg/dl) as compared with control group (244g/l, 258.24 mg/dl, 183.59mg/dl) respectively. In conclusion, this study indicated that the ionized alkaline water is the potential candidate to improve some physiological traits for Ross broiler chickens.

Keywords: Drinking water, blood glucose, alkaline ionized water, cholesterol, broiler

1. Introduction

The water is a necessary nutrient to every living organism and has been reported as the most important nutrient for growth and development. Furthermore the water is consideration the most important nutrient for animals, while growth rate, uniformity and health are common problems in commercial production, water quality and consumption are generally not taken into consideration [1]. Researchers on useful foods is currently popular; however, it is not yet well known that drinking water also has physiological functions, and that there are some health-beneficial effects of water [2, 3]. Through the (1) water molecule itself: flowing water affects cellular function and two together development and functions of organs [4, 5], (2) hydration and Brownian motion of water are fundamentally important for protein function [6], (3) Atoms and molecules derived from water molecules, such as protons (H+), hydrogen atoms (active hydrogen [H]), hydrogen anions (H-), hydrogen molecules (H₂) oxygen molecules (O₂), and reactive oxygen species (ROS); and (4) molecules dissolved in water, as mineral ions, mineral nanoparticles, organic and inorganic compounds [7]. In the field of food science and technology, water is an important for good digestion and to create a healthy gut flora, which will help an animal to absorb all the necessary nutrients [8]. Water intake on poultry farms include pH, hardness and total dissolved solids that effect on animal health and the researches shows that pH of water is a major factor effect on the amount of drinking water that birds consume [9]. Potable Electrochemically reduced water ERW (pH 8e10) is popular as a health advantageous water in Japan. ERW is also termed alkaline Electrolyzed water, alkalionic water, alkaline cathodic water, and alkaline ionized water [10].

The greatest advantage of using ionized water to inactivate the pathogens is users because of the non-existence of chemicals [11].

The use of Alkaline water given to poultry has a beneficial influence on their health condition [12, 13]. It was observed can be used as Antioxidants block dangerous oxidation formed from free radicals, much of the damage caused by carcinogenic substances in food may come round because of an oxidation reaction in the cell.

Principle of magnetic technology depends upon a moving electric charge in the ionized form and the magnetic field [14]. Contact of water with a permanent magnet for a big time produced

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