

Introduction

The problem of malnutrition, particularly protein malnutrition, is a real one in most developing countries of the world. These countries are mostly located in the tropic and subtropic regions where the level of animal protein intake (a few grams per capita per day) represents about one tenth of the level of intake in some advanced countries.

Poultry production provides a method by which rapid transformation in animal protein consumption can be achieved in these countries.

Poultry keeping in these regions generally follows traditional methods without the innovations which modern scientific endeavours have introduced. Thus the birds, under this system, are characterised by slow rate of growth, low productivity with feed efficiency. For these reasons, and to achieve reasonable progress in poultry industry as general and particularly in broiler industry, Egyptian authorities planned to import commercial hybrids for meat and egg production. At the same time Egyptian investigators carried out several trials to find out untraditional sources of protein for poultry diets formulation. The aim of all these trials is to solve the problem of deficiency in protein and energy resources and minimize the great competition between man and animal.

Great interest had been paid during the last few years to yeasts as a source of dietary protein in poultry nutrition. Many investigator were conducted to study the economic use of this source of plant protein and to evaluate the effect of replacing a part of protein in poultry diet from plant and animal origin with the single cell protein (yeast) without any possible hazards resulted from the extensive use of this source of protein.

In growing chick, optimum body growth and calcification of the bones occurs with a certain level of dietary calcium which differs according to the bird's genetical capacities for growth.

On the other hand, vitamin D has a potent effect on increasing calcium absorption from the intestinal tract through its stimulatory effect on increasing the calcium stimulated ATPase. It also has important effects on both bone deposition, bone reabsorption and correspondingly effects the rate of growth in growing chicks. However, vitamin D itself is not the active substance that actually causes these effects. Instead, it must first be converted through a succession of reaction in the liver and kidney to the final active product 1,25-dihydroxycholecalciferol which was found to have certain hormonal effect on the intestinal epithelium in promoting calcium absorption. These reactions are influenced with the biological effect of parathormone and plasma calcium ion concentration.

From the previously mentioned statements it was planned to study the effect of lowering dietary protein level with different calcium and vitamin D levels on the productive traits of broiler chicks. In addition, the effect of substituting part of dietary protein from animal source with another from single cell organism (yeast).