

ISOLATION AND IDENTIFICATION OF CELLULASE PRODUCING BACTERIUM FROM THE DECAYING PLANT MATERIAL AND INVESTIGATION OF ITS POTENTIAL AS A PROBIOTIC IN BROILER

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ABSTRACT

Cellulose is most abundant organic compound on earth. They are non-digestible polysaccharides which are present in soy, decaying plant material, grass, hemp etc and required a cellulase enzyme for hydrolysis. By using cellulase producing bacterium in a feed industry, soy products can then be utilized as an animal feed to fulfil the animal feed requirements. The goal of present examination is to disengage and recognize cellulytic microscopic organisms from rotting plant materials and research its potential as probiotic in broiler for improving development. For this reason, Bacterial strain was secluded from rotting natural plants and afterward distinguished as *Bacillus licheniformis* dependent on morphological, biochemical and molecular attributes. Three (3) broiler groups were constructed with each group containing 5 chicks with 3 replicates and then fed with selected bacterial strain cell suspension containing (2.2-6.5x 10⁹cfu/ml/1ml drinking water (T1) and (2.2-6.5x 10⁹cfu/ml/2ml drinking water (T2). Control group was fed with normal diet without any probiotic. The trial was continued for 42 days from day 1 to day 42. The chicks were observed for the body weight gain (BWG), Feed intake (FI), Feed conversion ratio (FCR), Average daily gain and Mortality (MC). On day 42, five broilers were haphazardly chosen from each gathering and blood samples that drawn and a few biochemical tests were performed to guarantee the safety of bacterial strain. Information was exposed to single direction investigation of fluctuation utilizing the general straight models (GLM) gave in SPSS 19.0.0 (2016). P value <0.05 was viewed as significant. Under the states of present examination, probiotic supplementation in broiler feed was viable in improving BWG and FCR. The mean values of Glucose, ALT, AST, ALP, GGT, TP, ALB, Globulin, T. Bilirubin, Iron, Uric acid, CK, CK-MB, LDH, BUN, Creatinine, Na, K, Cl, HCO₃, Ca, Mg, PO₄, Chol, TG, HDL, LDL, VLDL, Amylase and Lipase were non-symbolically different (P > 0.05) from each treated group and control group as well. The outcomes of current study revealed that probiotic treatments had no toxic effects on kidneys, heart, liver and pancreas, exhibiting its safety for broiler and food applications. So, we can say that cellulase producing bacteria do has a potential as probiotic.

KEYWORDS: Effect of Probiotic, Cellulase Producing Bacterium, Amylase and Lipase Level in Broiler, Probiotic Effect on Liver, Kidney, Heart, Electrolytes and Minerals, *Bacillus licheniformis*, FCR & BWG (Body weight gain)