



## A study on the effect of bacteriocin production from lactic acid bacteria in poultry nutrition

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### ABSTRACT

**Objective:** This research was carried out to isolate lactic acid bacteria from dairy products, to examine the isolated lactic acid bacteria for the production of bacteriocin, its purification as well as its use as supplement in poultry nutrition to improve the growth performance of the birds.

**Methodology and results:** Five (5) samples of cow milk and five (5) samples of fresh yoghurt were procured from the market; each sample was serially diluted to the third fold and plated on De Man Rogosa Sharpe agar (MRS) agar. Pure discrete colonies of *Lactobacillus* spp were isolated and sub-cultured on MRS broth. *Lactobacillus* spp isolated from Cow Milk and Fresh Yoghurt was screened using agar well diffusion. *Lactobacillus* isolates which showed high zone of inhibition against the test organisms (*Staphylococcus aureus* and *Escherichia coli*) were designated positive. These isolates were centrifuged at 20,000 rpm ( $\leq 4^{\circ}\text{C}$ ) for 30 min and their supernatant was adjusted to pH of 7.1 with  $\text{Na}_2\text{CO}_3$  to remove lactic acid effect, before filter sterilization using membrane filter (0.2 $\mu\text{m}$ ). Five (5) mg/ml catalase was added to eliminate peroxides effect. The solution was tagged as bacteriocin crude extract (BCE) which was infused into the poultry feed. Ten (10) three weeks old chicks were separated into two groups (5 each). “Group A” as the control and “Group B” as test. The test chicks had 5ml of bacteriocin infused into their daily feed while the control chicks were fed without any infusion of bacteriocin in their feed. The chicks were weighed every seven (7) days to compare the weight gain between the control and test chicks. At the end of the study, it was found that the test chicks weighed 900g when compared to the control chicks, which weighed 830g.

**Conclusion and application of results:** This therefore means that bacteriocin produced by lactic acid bacteria aids in the weight gain of poultry. This suggests that bacteriocin could be considered a major growth booster in poultry feed and should be applied in its feed formulation.

**Keywords:** Bacteriocin, Cow milk, Fresh yoghurt, Lactic Acid Bacteria, *Lactobacillus*