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Success Story

Immune-boosting effect of moringa supplementation in Vanaraja chicks

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Poultry industry is one of the important segments among agriculture sector and made a remarkable growth ever since its inception. It is blooming as a sunrise sector, undergoing a major shift in structure and operation, converting it into a major industry. Poultry sector in India is broadly categorized as two sub-sectors of organized commercial farming and the other unorganized sector. The unorganized sector referring to backyard poultry plays pivotal role in supplementary income generating activity along with family nutrition among the rural people. Backyard poultry rearing fulfils the demand of quickest source of cheap and readily available protein for economically backward classes of people in the form of eggs and meat. Vanaraja, a dual-purpose multi-colored chicken developed by Project Directorate of Poultry Research, Hyderabad (ICAR) is a popular breed for backyard farming at low input production system. In farming sector, diseases along with poor health conditions of poultry remarkably affect its output and thus farmer's profitability. A successful poultry farming necessitates the strategies for the enhancement of immunity along with minimizing the effects of immunosuppression for a better health status in poultry. It is a common practice to use antibiotics in poultry feed as growth promoter and for disease preventions, but due to an upsurge in antibiotic residues in food items, researchers have started to consider about antibiotic-free means of poultry raising and researches are being done to use alternatives such as various natural herbs and their extracts for health management in poultry by augmenting host immune status.

Moringa oleifera is considered as miracle tree and is one of the world most useful plants due to its nutritional, medicinal and economical significance. The presence of various phytochemical components like alkaloids and saponins in its aqueous extracts imparts immune modulation activities. Several workers have reported the presence of rich nutrient contents in the



leaves of moringa tree and studied their use as a dietary supplement to improve the production and immune performance of poultry.

The present work also investigated the effects of supplementation of *Moringa oleifera* aqueous leaf extract in drinking water provided to Vanaraja chicks with a focus to measure the change in antibody titre against NDV for the humoral immune response. The extract was prepared by soaking of 60 grams of grounded moringa leaf in one litre distilled water for 24 hours and then filtering it through muslin cloth. For this study, day-old Vanaraja chicks were procured and reared on deep litter system by following all routine management and standard poultry vaccination protocol including vaccination against Newcastle disease. After 4 weeks of rearing, the chicks were randomly divided into two different treatment groups and one control group with 15 birds in each group. Then during the trial, the chicks of T1 and T2 treatment groups were supplemented aqueous moringa leaf extract daily at the rate of 60ml/L and 90ml/L of drinking water, respectively for 2 weeks from 4th week to 6th week of age. After the completion of experimental trial, the blood was collected randomly from six birds of each group and serum was used for conducting haemagglutination inhibition (HI) test. The increase in HI titre was noted for both the treatment groups. The antibody titre elicited due to Newcastle disease vaccination is an indicator of the humoral immune response. The HI titre of T2 treatment group was significantly higher than the control and thus indicated a better humoral response on the supplementation of aqueous extract of moringa leaves.

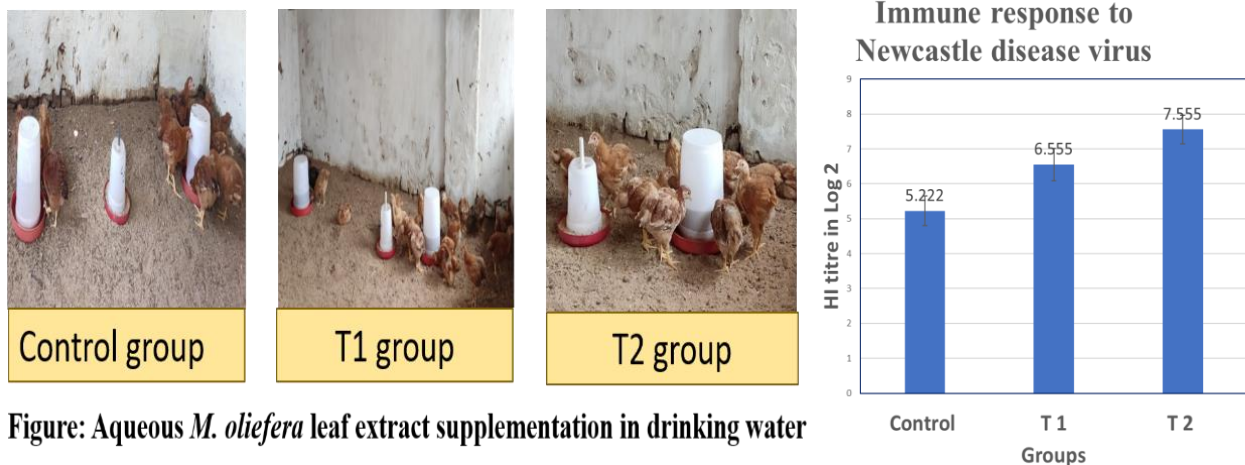


Figure: Aqueous *M. oleifera* leaf extract supplementation in drinking water

In the present study, supplementation of moringa leaves aqueous extract had also a positive influence on the general health and well-being of experimental chicks. Nowadays, immunomodulation has become an important component of disease management and this study offers an opportunity to consider the immune-modulators from commonly used plants which are supposed to have minimal or no side effect on feeding. The outcome of present work suggested that *M. oleifera* aqueous leaf extract has profound influence on immune responses. This study will also help the other researcher to examine the uses and optimizing the proper doses of *M. oleifera* for better effect on immunity and health status in chickens.