3.7 EXPLORATION OF GROWTH PROMOTING AND IMMUNOMODULATING POTENTIALS OF INDIGENOUS DRUGS IN BROILER CHICKEN IMMUNIZED AGAINST NEWCASTLE VIRAL DISEASE

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The study was carried out to find out the growth promoting and immunomodulating potentials of indigenous herbal plants viz., Glycyrrhiza glabra (G. glabra), Phyllanthus niruri (P. niruri) and Aloe vera (A. vera) in both crude (1% inclusion level), as well as, standardized extract forms (0.1% inclusion level), either alone or in combinations, in comparison with synthetic antiviral drugs Amantadine and Acyclovir. First biological trial was conducted as pilot trial to assess the growth promoting and immunomodulating abilities of herbal plant drugs and synthetic antiviral drugs. Synthetic antiviral drugs viz., amantadine and acyclovir did not produce any positive changes in either production performances or immune status of the birds. So, these drugs were not included for further studies. Second and third biological studies were conducted to assess the growth promoting and immunomodulating abilities of herbal plant drugs either individually or in combinations. The final trial was conducted with all possible combinations of plant drugs. The final body weight gain achieved was very much pronounced in the group treated with P. niruri and A. vera. Combined effects of P. niruri and A. vera were more than that of their individual effects. The cumulative feed intake was more in all the treatment groups except the groups treated with G. glabra. P. niruri performed better. P. niruri with A. vera also performed better than other groups. Crude extract of A. vera performed better than the standardized extract. Combinations of all the three indigenous plants showed the best performances. P. niruri treated groups had better feed conversion efficiency. Combination of P. niruri and A. vera also improved feed conversion efficiency. P. niruri or A. vera, when combined with G. glabra, improved the feed conversion efficiency, indicating a possible herbal potentiating effect. All the treatment groups showed higher HI titres. Combination of G. glabra and P. niruri produced the maximum titre followed by the combination of G. glabra, P. niruri and A. vera. A. vera crude extract performed better than standardized extract. Crude and standardized extract combination of P. niruri and A. vera produced same titre. Highest HA titre against SRBC was observed in the combination group of crude extract of G. glabra and P. niruri and P. niruri and A. vera, followed by combination of G. glabra and P. niruri (standardized extract) and combination of crude extracts of all the three plants. All the treatment groups showed better titre than the control group. The haematological parameters viz., total leukocyte count and differential count did not vary between the indigenous plant drug treated groups and the reference control groups, but based on DNCB test, it was concluded that the cell mediated immunity was increased by the inclusion of herbal drugs particularly A. vera. Except G. glabra (crude extract), all the other groups showed higher serum total protein values. P. niruri and A. vera (both crude and standardized extract) showed similar effects in elevating the serum total protein. When G. glabra (crude extract) was combined with P. niruri (crude extract) or A. vera (crude extract) similar increase in level was observed. P. niruri and A. vera (both crude and standardized extract) and G. glabra (standardized extract) exerted positive effects on serum albumin levels. Combination of the plant drugs did not positively affect the serum albumin levels. During 6 weeks of age there was significant difference noticed in serum globulin level. Between the different forms of G. glabra, standardized extract exerted more positive effect than crude extract. P. niruri, standardized extract had more positive effect than crude extract. A. vera crude extract was better in improving the serum globulin level than the standardized extract. Combination of plant drugs produced positive effects on serum globulin levels. The treated groups showed positive effect on albumin globulin ratio at 2 weeks and 4 weeks of age.

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