ISOLATION AND IDENTIFICATION OF *PASTEURELLA MULTOCIDA* FROM POULTRY FOR PREPARATION OF VACCINE AND DETERMINATION OF ITS EFFICACY

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ABSTRACT

The present research work was performed for the isolation and identification of *P. multocida* from field cases, preparation of its vaccine and determination of its efficacy. For this purpose, samples were collected from suspected dead birds of Phenix Hatchery Ltd, Gazipur. The isolates consistently produced acid from dextrose, sucrose and mannitol but not fermented maltose or lactose. Capsular antigen was extracted from the organisms and fowl cholera (FC) vaccine was prepared. The experimentally prepared FC vaccine was administered in 9 weeks aged Sonali chickens at the dose rate of 0.5 ml of 2.93×10^8 CFU through subcutaneous (SC) route in each selected groups (A, B, C, D and E) in the laboratory. Booster dose was given with the similar dose and route at 15^{th}, 21^{st}, 28^{th}, 35^{th}, 42^{nd} days after primary vaccination in groups A, B, C, D and E respectively and group F was kept as unvaccinated/control. Prevaccination sera were collected from all the groups of birds. The mean Passive haemagglutination (PHA) titers of post-vaccination were 96±12.09, 88±11.71, 88±11.71, 80±10.47 and 80±10.47 in group A, B, C D and E respectively. The mean PHA titer in birds of unvaccinated control group F were <4±0.00. The vaccine produced better immune response when booster was given at 15^{th} days after primary vaccination compared to 21^{st}, 28^{th}, 35^{th}, 42^{nd} days after primary vaccination. Challenge infection was conducted on all the vaccinated and control group of birds at 15 days of post vaccination. The PHA titer obtained from different group of birds was analyzed by *t*-test to determine the protective capacity of vaccinated chickens against challenge exposure. It was demonstrated that experimental fowl cholera vaccine using capsular extract conferred 100% protection against challenge infection and found to be safe.

Keywords: *Pasteurella multocida*, PHA titer, Vaccine, Immunogenicity, Chicken.