

Application of N Gene Targeting Conventional RT-PCR for Detection of Infectious Bronchitis Virus in Poultry

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Infectious bronchitis (IB) caused by a gamma coronavirus in the *Coronaviridae* family is a rapidly spreading viral disease of chickens. Currently, IB has been disseminated throughout the world, with almost 100% morbidity in most affected areas. The clinical outcome of IB virus infection depends on the age of the affected birds, the virulence of the virus strain involved, and the immune status of affected flocks. Currently, there is no medication for this disease. As a result, specific efforts are warranted to detect this disease rapidly in order to minimize its adverse economic impact on the poultry industry. The objective of this study was to rapidly diagnose IB virus infected birds using a conventional RT-PCR that targets N gene of the IB virus. During postmortem examinations, layer birds with gross lesions suggestive of IB were chosen from routine diagnostic submissions received at the veterinary investigation center, Wariyapola. Trachea, kidneys, caecal tonsils, spleen, and lungs were collected from the selected birds. Between April to June 2022, 30 birds were sampled. Total RNA was extracted from approximately 40 mg of homogenized tissue samples using a commercial total RNA extraction kit according to the manufacturer's instructions. Reverse transcriptase PCR was performed using a commercial one-step RT-PCR Kit. Primers F -5' GTC TTG TCC CGC GTG TA -3' and R -5' ACC CTT ACC AGC AAC CC -3' were used to target 435 bp segment of the N gene of IB virus. IB viral RNA was found in twelve suspected cases (40%). These finding demonstrated that IB is common in Sri Lankan chicken flocks. According to our results IB was observed in both vaccinated and unvaccinated layer flocks and the disease is more prevalent in mature birds than in younger flocks. Rapid laboratory diagnosis of IB using molecular techniques such as conventional RT-PCR will be useful in preventing severe economic losses in layer industry. Continuous detection of IB virus strains perpetuating in Sri Lanka is required to select optimal vaccine strains in order to implement successful immunization programs to control this disease.

Keywords: Infectious Bronchitis, Poultry, Gamma coronavirus, RT-PCR

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