

Molecular and pathogenicity of infectious bronchitis virus (Gammacoronavirus) in Japanese quail (*Coturnix japonica*)

ABSTRACT

Infectious bronchitis virus (IBV) infection is highly infectious respiratory disease in poultry industry with significant economic importance. The prevalence of IBV in quail industry in Malaysia was not well documented; therefore, its actual role in the epidemiology of the disease is relatively unknown. This study was to determine the susceptibility of Japanese quail, as one of the species in commercial poultry industry, toward IBV. In addition, it will also give a potential impact on the overall health management in the quail industry even though it had been established that quail are resistant to diseases affecting poultry. Moreover, to the best of our knowledge, it is the first experimental study on IBV inoculation in quail. In this experimental study, 20 quails were divided into 4 groups (n = 5 for group A, B, and C, n = 5 for control group). The quails in group A, B, and C were infected via intraocular and intranasal routes with 0.2 mL of 10×5 EID₅₀ of the virus. Clinical signs, gross lesions, positive detection of virus, and trachea histopathological scoring were used to assess the susceptibility of these Japanese quails. The results have indicated mild ruffled feathers and watery feces in these inoculated birds. Trachea, lung, and kidney were subjected to one-step reverse transcription polymerase chain reaction for virus detection. The virus was found from trachea and lung samples, whereas it was absent from all kidney samples. Only 3 quails were found with gross lesions. There was a significant difference of tracheal lesion by 0.009 ± 0.845 ($P < 0.05$) within the treatment groups. In summary, Japanese quails might be susceptible to IBV.

Keyword: Japanese quail; Infectious bronchitis virus; RT-PCR; Susceptibility; Pathogenicity