

Molecular confirmation of gross pathological changes in the liver caused by inclusion body hepatitis virus in broiler chickens in Sri Lanka

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Introduction and Objectives: Inclusion body hepatitis (IBH) is an economically important acute disease, affecting 3-7 week broiler chickens. Fowl adenoviruses (FAdVs) of genus *Aviadenovirus*, Family *Adenoviridae* are the cause of IBH. FAdV-D (serotypes 2, 3, 9, and 11) and FAdV-E (serotypes 6, 7, 8a, and 8b) are responsible for IBH which mainly affects the liver. This investigation was carried out to confirm the circulation of IBH causing FAdVs in broiler farms in Sri Lanka by examining the gross liver lesions that are indicative of IBH and confirming IBH using a conventional polymerase chain reaction (PCR)

Methods: Liver samples were collected from broiler farms in the Western province (2 samples), North Western province (14 samples) and Central province (4 samples) of Sri Lanka. All liver samples had gross pathological lesions. Using the QIAGEN DNAeasy® mini kit, total DNA was extracted from liver samples. The PCR target was FAdV hexon gene using primers FAdV-Hexon A-CAARTTCAGRCAGACGGT and FAdV-Hexon B-TAGTAGTGMCGSGACATCAT, and the expected amplicon size was 897 bp (95 °C 15 minutes, 35 cycles at 94 °C, 60 °C and 72 °C 1 minute each. Extension 72 °C 10 minutes).

Results: The collected livers had gross pathology including severe hepatomegaly, pale yellow liver with necrotic foci, multifocal petechial haemorrhages and friable liver. One liver sample from the Western province, 10 liver samples from the North Western province and 3 liver samples from the Central province together with the positive control showed expected bands at the 897 bp level for PCR. Commercially available, inactivated IBH vaccine was used as the positive control. The negative control showed no band at the level of 897 bp.

Conclusions: Based on the PCR results, 70% of liver samples with gross pathology suggestive of IBH were positive for FAdV. This finding shows that FAdV is circulating in broiler farms in the Western, North Western and Central provinces of Sri Lanka. The remaining 30% of PCR negative liver samples with gross pathology suggestive of IBH may have a different disease or IBH caused by a different serotype of FAdV. Further investigation and detection of serotypes causing IBH would be necessary to implement disease control strategies in the future.

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Keywords: Broiler chickens, fowl adenovirus, gross lesions of liver, Inclusion body hepatitis, PCR

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